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The space challenge and Soviet science fiction

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ABSTRACT

La studiosa Julia Richers sottolinea come le ricerche sulla storia dell'esplorazione spaziale sovietica abbiano tre principali direzioni. La prima riguarda la *storia politica* della Guerra Fredda che considera la conquista dello spazio e lo sviluppo di potenti missili come parte di una più grande competizione tra gli USA e l'URSS. La seconda esamina in particolar modo lo *sviluppo scientifico e tecnologico* a partire dagli anni Ottanta, ossia da quando l'abolizione della censura ha permesso l'apertura al pubblico di molti archivi storici e la rivelazione di importanti informazioni. La terza include la propaganda sovietica e la fantascienza come parte fondamentale della *storia culturale e sociale* sia dell'URSS che della Russia post-rivoluzione. Il presente lavoro analizza la storia dell'esplorazione spaziale sovietica e, partendo dalle sue origini (fine XIX° secolo), prende in considerazione i principali successi che portarono al lancio del primo satellite artificiale nel 1957 e il primo uomo sulla luna nel 1961. Lo studio, inoltre, analizza le politiche propagandistiche da parte del regime socialista che servirono come mezzo per accrescere l'orgoglio nazionale e migliorare la fratellanza con i paesi satellite dell'Europa Occidentale.

Nel secondo dopoguerra, le due nazioni più potenti al mondo si impegnarono in una competizione le cui radici riguardavano la loro diversa ideologia, economia e cultura. La cosiddetta Guerra Fredda non si realizzò mai in un confronto diretto tra le due superpotenze ma si concretizzò attraverso coalizioni strategiche, campagne propagandistiche, lo spiegamento di missili e armi nucleari e la rivalità tecnologica. La corsa allo spazio fu probabilmente l'aspetto più affascinante e al tempo stesso economicamente più impegnativo nella rivalità tra USA e URSS. La conquista dello spazio, infatti, diventò un pretesto per garantire la sicurezza della nazione e la superiorità ideologica. Con il discorso pubblico del presidente J. F. Kennedy nel 1961, la sfida fra le due superpotenze fu definitivamente lanciata; e la luna ne divenne il simbolo più significativo: la prima nazione che avesse raggiunto la luna, avrebbe definitivamente prevalso sull'altra sia nello spazio che in terra.

Durante gli anni Cinquanta e i primi anni Sessanta, l'URSS compì una serie di importanti successi, come il primo missile balistico intercontinentale in grado di portare in orbita il primo satellite artificiale nel 1957, le prime immagini della superficie lunare nel 1959, il primo uomo e la prima donna sullo spazio rispettivamente nel 1961 e nel 1963 e il primo uomo a realizzare una passeggiata spaziale nel 1965, che favorirono la realizzazione e la diffusione della propaganda sovietica. Tutti questi primati furono utili al regime socialista non solo per dimostrare la superiorità militare dell'URSS ma furono impiegati anche come politiche di *soft power* intese a persuadere il resto del mondo del fascino del comunismo. Per un certo periodo di tempo, infatti, e soprattutto a seguito del lancio dello Sputnik nel 1957 si credette seriamente nella vittoria dell'URSS per

quanto riguardava la tecnologia spaziale e militare anche grazie all'apparente stabilità economica dei piani quinquennali. Fu proprio in questo periodo che la cosiddetta *nauchnaia fantastika* (da qui in poi NF) si caratterizzò per essere la corrente letteraria preferita dal regime socialista poiché era adatta a sviluppare le politiche di *soft power* e a rafforzare l'immagine dell'ideologia comunista nell'unione. Come specifica la studiosa Birgit Menzel, la fantascienza sovietica si sviluppò in base all'interpretazione marxista del progresso scientifico e al suo stretto legame l'utopia comunista del benessere e della felicità del proletariato che avrebbe colmato il vuoto esistente tra l'*intelligentsia* e la cultura di massa.¹ Lo scrittore polacco Stanislaw Lem è considerato uno dei più celebri scrittori di NF al mondo. Nei suoi romanzi, infatti, si rintracciano gli elementi più comuni di questo genere letterario come l'entusiasmo per un radioso avvenire e la fiducia nel progresso scientifico e tecnologico tipici dell'ideologia comunista. In particolare, *Solaris* (pubblicato a Varsavia nel 1961) è probabilmente uno dei suoi romanzi più conosciuti in Europa grazie soprattutto all'adattamento cinematografico nel 1972 del regista sovietico Andrej Tarkovskij. Il film valse al regista il Gran Premio della Giuria al 25° Festival di Cannes nello stesso anno, nonostante fosse stato giudicato la risposta sovietica al celebre *2001: Odissea nello spazio* di Stanley Kubrick. Il romanzo fu nuovamente riadattato nel 2002 e vide come protagonista George Clooney. Ad una lettura approfondita del romanzo, si può di certo affermare come sia in grado di cogliere a pieno le sensazioni contrastanti del periodo preso in esame: se, da un lato, l'entusiasmo nei confronti dell'esplorazione del cosmo porta gli scienziati alla ricerca di altri pianeti e altre

¹ Birgit, Menzel, "Russian Science Fiction and Fantasy literature", in *Reading for Entertainment in Contemporary Russia: Post-Soviet Popular Literature in Historical Perspective*, eds. Lovell, Stephen and Menzel, Birgit, Verlag Otto Sagner, Munchen, 2005, cit. p. 119.

forme di vita, dall'altra, c'è la paura per il possibile incontro con l'"altro" e l'incognita della mente umana di risolvere l'enigma alieno.

A partire dalla metà degli anni Sessanta, l'URSS cominciò ad accumulare evidenti sconfitte che portarono di lì a poco ad una vera e propria disillusione verso la possibilità di continuare il programma spaziale e la sua conquista. La rimozione dal potere del leader sovietico Chruščëv nel 1964, l'inevitabile sconfitta nella corsa alla luna nel 1969 e la definitiva cancellazione del programma sovietico di allunaggio nel 1974 mostrarono l'incapacità del regime di far fronte a questa situazione di arretratezza politica e tecnologica. Nonostante gli sforzi di diffusione del *soft power*, l'URSS non fu mai in grado di competere realmente con la potenza statunitense specialmente a causa del proprio sistema economico chiuso. Joseph F. Nye Jr., decano della John F. Kennedy School of Government presso la Harvard University, sottolinea che soltanto l'elezione di Gorbaciov e la sua politica di *glasnost* aiutarono l'URSS ad ottenere maggiore credibilità ma che l'assenza di esportazioni sia legate all'economia che alla cultura continuarono a minacciare credibilità del paese stesso.² Tale situazione di stagnazione portò, dunque, l'URSS ad una crisi politica ed economica che minacciò definitivamente la possibilità di competere con gli USA. Dal punto di vista letterario, la graduale soppressione della censura alla fine degli anni Ottanta e i cambiamenti politici e sociali che seguirono il crollo dell'URSS favorirono la pubblicazione di documenti e la diffusione di informazioni che fino a quel tempo erano rimasti segreti. Come descrive la prof.ssa Donatella Possamai, questi cambiamenti hanno segnato il ritorno della cosiddetta *massovaja literatura* la cui

² Nye Jr., Joseph S., *Soft Power: The Means To Success In World Politics*, PublicAffairs, 2005.

principale caratteristica sono l'omogeneizzazione dei gusti del pubblico e la diversificazione dei generi letterari.³ Nella letteratura post-sovietica, il genere letterario della NF ha avuto e continua ad avere un grande successo in Russia soprattutto tra i giovani perché è in grado di mescolare elementi della storia passata sovietica e della storia contemporanea russa con humour ed ironia. Un approccio di questo tipo lo si ritrova nella prosa di Viktor Pelevin (nato nel 1962), considerato uno fra gli scrittori più talentuosi del post-modernismo russo. Il racconto preso in considerazione e da cui comincia il presente lavoro è *Omon Ra* (1991). Facendo largo uso della parodia, Pelevin è in grado di portare il protagonista alla totale disillusione nei confronti del programma spaziale sovietico e, in particolar modo, dell'ideologia comunista.

A seguito della dissoluzione dell'URSS e con la fine della Guerra Fredda, le due superpotenze iniziarono a prendere in considerazione l'idea di collaborare seriamente nel campo delle tecnologie spaziali per la costruzione di una stazione spaziale congiunta. Originariamente concepita dal presidente R. Reagan verso la metà degli anni Ottanta, il progetto per la Stazione Spaziale Internazionale (ISS) includeva programmi spaziali sia americani che sovietici al fine della creazione di un singolo complesso spaziale. A seguito dell'assemblaggio della ISS in orbita terrestre, nel 2002 ha ospitato il primo equipaggio di residenti composto da due cosmonauti russi e uno americano che raggiunsero la stazione spaziale grazie al Sojuz russo, che viene usato tutt'oggi per trasportare i cosmonauti dalla terra alla ISS. L'esplorazione del cosmo è ancor'oggi un tema molto sentito dalla comunità

³ Possamai, Donatella, "Vse my deti massovoj kul'tury...- Siamo tutti figli della letteratura di massa..." [We are all sons of the mass literature], in *Nei territori della slavistica. Percorsi e intersezioni: Scritti per Danilo Cavaion*, De Lotto, Cinzia and Mingati, Adalgisa (eds.), Padova, Unipress, 2006, pp. 313-327.

scientifica globale e la ISS continua ad essere una priorità grazie anche alla collaborazione di altre agenzie spaziali come quella giapponese, europea e canadese. A tutt'oggi non ci sono informazioni da parte delle agenzie spaziali riguardo un eventuale fine del programma ma si spera che ciò possa continuare ancora a lungo.

INTRODUCTION

Viktor Olegovich Pelevin (born in 1962) is one of the most influential and provocative writers of contemporary Russian literature. As it is generally said, Pelevin's novels are beyond any exact classification but its prose stays in a place between postmodernism and esoteric tradition, satirical science fiction and fantasy. In fact, his creative manner is depicted as a kind of post-socialist surrealism because in his works he emphasises the subconscious mind which generates a distorted vision of the real objects.¹ His works have been translated in many languages, including Chinese and Japanese, and he is well-known in the United States, France and Germany. In the article *Phenomen Pelevina*, the Russian literary critic Alexandr Genis speaks about his worldwide popularity and prose:

“Pelevin makes a stunning impression to the fresh reader who is not familiar with the dislocation of the Russian literary process. It could be said that his success in the West proves that Pelevin is one of the very few Russian writers who entered American literature without passing through the Slavic door. [...] American critics treats Pelevin better than their Russian counterparts. [...] Pelevin is a poet, a

¹ Gubanov, Vladimir, *Analiz romana Viktora Pelevina “Omon Ra”* [Analysis of the novel “Omon Ra” by Viktor Pelevin]. Retrieved from <http://pelevin.nov.ru/stati/o-guba/1.html> (consulted on 13/01/2013).

philosopher and a writer of such border zones. He lives on the border between realities. In the place of their meeting appears beautiful artistic effect characterized by interference - one picture of the world, falling to the other, creates a third one which is different from the first two. The writer who lives on the border of two epochs, populates his works with characters that live at the same time in both worlds.”²

The short novel *Omon Ra* (1991) is considered one of his best novel since it won The Bronze Snail and Interperson Awards in 1993. It is the story of a Soviet boy, Omon Krivomazov who would call himself Ra.³ He dreams of becoming a cosmonaut, that is to say the symbol of the Soviet achievement in space and, for that reason, he joins the flying school; however, as soon as he manages to land on the Moon, he learns that the Soviet space program is entirely other than what he has intended. At first glance, the main's theme of the novel is the Soviet propaganda and its deconstruction: the Soviet ideology is destroyed through the use of the post-modernist dissimulation and parody. However, it is not the only focus. If, on the one hand, the Soviet space program turns out to be a total deception, the cosmonauts involved in it are forced to get ready to die because the mission does not assure them the return on Earth. When Omon is chosen as a member of the space flight committee and enter the flying school, he follows lesson about the automatic system of the spacecraft. However, he soon realizes it was a mockery: the Soviet automatics does not exist at all. Omon himself has to

² Genis, Alexandr, *Fenomen Pelevina* [The Pelevin's Phenomenon]. Retrieved from <http://pelevin.nov.ru/stati/o-gen1/1.html> (consulted on 10/01/2013).

³ *Omon* is the generic term referring to the Soviet/Russian police force called *Otryad Mobilniy Osobovo Naznacheniya* (O.M.O.N., literally Special Purpose Mobile Unit) which is present in every major city including Moscow. This name was given to him by his father in the hope that he would follow this kind of career. The name *Ra* refers to the Sun god in the ancient Egyptian tradition whose body is human and whose head is that of a falcon, and reflects Omon desire to explore the outer space. Both these names demonstrates the relation between his dream to conquest the space and the necessity to undertake a military career to fulfill his aspiration.

drive manually the spacecraft. Once land on the Moon and install a Soviet slogans transmitter, he should shoot himself as his return on Earth is not taken into consideration. Nevertheless, the mission on the Moon would be worldwide celebrated as the victory of the Soviet automatic system. For that reason, cosmonauts involved in that suicide mission are portrayed as *Real Men*. The first day of class, the lieutenant-colonel of the flying school named after the cosmonaut Alexsei Maresiev says to the members:

“We have to remember the responsibility we bear on our shoulders, don’t we? And make no mistake about it, by the time you get your diplomas and your ranks, you’ll be Real Men with a great big capital M, the kind that exist only in the land of Soviets. [...] Remember the story of the legendary hero Alexei Maresiev [...] he was a Soviet man! A Real Man! And you must never forget this, never, wherever you are!”⁴

Paradoxically, it seems to say that if a cosmonaut want to be acclaimed as a Soviet *Real Man* he is forced to suffer humiliations and deprivation. In the novel, Omon tells about many cases of maltreatments but without understand at all what is happening: the food is often full of sedatives which unable students lucidity, he assisted to the final state examination consisting of performing the Soviet folk dance Kalinka in front of the entire exam committee and he also notes the practice of feet amputations as a rite to plug the myth of Alexey Mares’iev. Here, Pelevin refers to the popular novel of Boris Polevoi titled *Povest’ o nastoiashchem cheloveke* (*Story of a Real Man*, 1949) which describes the heroic deed of the Soviet fighter pilot Mares’iev who returned proudly to combat after being

⁴ Pelevin, Viktor, *Omon Ra*. Trans. Andrew Bromfield, Faber and Faber, 1994, cit. p. 31.

seriously injured in a accident during the Second World War which caused him the amputation of both of legs.⁵

In this absurd context made of excesses and oddities, Omon is unable to take a stand.⁶ On the one hand, he is completely confident in becoming a *Real Man* and he does not put into question any Soviet demands. His only desire is to fly to the Moon and he pursues this dream until the end. This aspect of his personality is evident when he shows unconditional admiration for his lecturer, the Colonel Urchagin. Despite he was blind, paralysed and chained to a wheelchair, Omon was amazed by his positive optimism carrying out his duty and never tiring of life which made him stop thinking that all Communists were cunning, mean, and self-serving. At the same time, however, Omon knows he represents a potential dead hero for the Soviet space programme. There is, of course, a strict relation between Omon's desire to be a *heavenly body* and Soviet expectation for a dead hero. However, the outer space turns out to be a total disenchantment for both the main character and the Soviet state, rather than the place of fulfilment. Since he was a child, he imagined to fly on the Moon observing the landscapes of other worlds and the blue sphere of the Earth, but at the very moment he drives the spacecraft in space, he feels disenchanted and uncomfortable:

"I was on the moon. But I had no feelings about the fact at all; [...]

The Moon proved to be a narrow, black, stuffy space where the faint electric light came on only rarely; [...] I hadn't the slightest idea what the world around me looked like. But then, of course, this kingdom of

⁵ Polevoi, Boris, *Povest' o nastoiashchem cheloveke* [Story of a Real man], Moscow: Khudozhestvennaia literatura, 1969.

⁶ Kabanova, Daria Sergueyevna, *Sites of Memory: Soviet Myths in Post-Soviet Culture*, PhD dissertation, University of Illinois, 2011, p. 196.

eternal darkness probably didn't look like anything – apart from me,
there wasn't anybody for whom it could look like anything.”⁷

In a few words, it could be said that there is a double failure concerning the outer space and especially the Moon. On the one hand, the Soviet state fails to make the outer space real and to fix its dead hero in the history of the Soviet achievements; the idea of the cosmos, in fact, reveals itself as an ideological construction made up to attract Omon's fantasy. On the other hand, Omon's desire to go in the outer space and land on the Moon fails. At the end of the novel, Omon discovers that he is not in the outer space, but in the Kremlin's underground. This disillusionment marks the death of Omon's youthful dream and fantasy and the failure of the Soviet ideology of dead heroes. The final is still open and shows Omon on the metro in the condition to decide what to do about his fate.

It is important to highlight that reading the novel, the reader had the perception that Omon has not accomplished heroic deeds. Even though the Soviet state made all the possible to make Omon sure that he is going to die (for example, he discovers the bodies of a former dead crew on the lunar surface), the fact that he is telling the story is a proof that he did not become a Soviet *Real Man*. From the beginning, it is quite obvious that the main character will survive because he is able to narrate the story.⁸

The novel leaves the reader a wide field of interpretations and this is definitely the main characteristic of Pelevin's poetry. As Gubanov explains, it could be seen as an attempt to show the Communist system through the image of the outer space. Omon childhood is filled with the dream of the space which

⁷ Pelevin, *Omon Ra*, cit. pp. 121-123.

⁸ Kabanova, p. 192-207.

marked his personality: the summer time spend at the camps for Young Pioneers, his house was not far from the Cosmos cinema, the huge metal rocket at the center of his district, the wooden airplane in the small children's playground, movies and songs about pilots, the mosaic on the wall of the pavilion exhibition depicting a cosmonaut in outer space. All these symbols are part of the Soviet propaganda promising a brighter future to citizens.

It seems that the presence of the absurd element in Pelevin's *Omon Ra* is used not only to give an ironic interpretation of reality, but also it allows the author to reproduce the ideological background of Communism. Besides the heroic deeds of the members of the flying school, there are doubts about the meaning of their suicide mission and being a Soviet hero. As Elena Boroda notes in her essay, they are part of the generation which has no present and no future: their present has been replaced by an artificial model of reality and their future has been sacrificed for the sake of the Soviet achievements in space. The Colonel Urchagin better summarizes this kind of condition:

"No one's ever ready to be a hero - there's no way to be prepared for it [...]. But you can't teach anyone the actual inner of heroism, it can only be performed. The more you wanted to live before, the better for the act of heroic sacrifice. The country needs heroic feats, even invisible ones."⁹

Moreover, the absurd is able to reveal the Soviet code which is based on the effort to submit reality to ideology, that is to say the relationship between the voluntary sacrifice of the cosmonaut and the will of the State to create the dead hero. Thus, Communist ideology turns out to be the product of manipulation and human

⁹ Pelevin, *Omon Ra*, cit. pp. 46.

sacrifice.¹⁰ At the same time, the satirical intent allows Pelevin to depict the Soviet Union as a deformed reality and to sweep the Soviet enthusiasm for space exploration.

As Kubanov highlights, music plays an important role in the novel, in particular that of Pink Floyd. Not coincidentally, a few pages are dedicated to the dialogue between Omon and his comrade Dima about the best song of Pink Floyd. Dima is a taciturn and unsociable character but while they are onboard the spacecraft just before the braking in this episode he shows all his enthusiasm. Among the lyrics they mention there are *One of these Days*, *A Saucerful of Secrets* and *Summer 68'* but particular attention is given to the song *Echoes*. It depicts the image of a lonely albatross flying over a vast ocean expressing loneliness and hopelessness, the same feelings the cosmonauts have at the eve of their martyr. Omon shows all his sincerity at the very moment when he tells Dima that Pink Floyd's soundtrack from the film *Zabriskie Point* is "nothing special".¹¹ Omon, actually, admires the music and knows that Dima has spent his last day in Moscow trying to find the record; but he lies because he does not want Dima to die feeling unfulfilled. So he lies, knowing he is doing the right thing. The songs of the Pink Floyd could clearly be the soundtrack for the whole novel.

As shown, this short novel by Viktor Pelevin depicts the Soviet space program in an ironic and disenchanted way. It is important not to forget the context of its publication. The collapse of the Soviet Union in the late 1980s and

¹⁰ Boroda, Elena, *Poviest' V. Pelevina "Omon Ra" v rusle otchestvennoi traditsii* [Story about "Omon Ra" by V. Pelevin in the current of the national tradition], Retrieved from <http://pelevin.nov.ru/stati/o-tradition/1.html> (consulted on 18/01/2013).

¹¹ *Zabriskie Point* is the name of a 1970 film by the Italian director Michelangelo Antonioni and also place located in the Death Valley in the United states. In the novel, *Zabriskie Point* is the code name for the landing point on the Moon surface.

the gradual suppression of the censorship definitely permitted the publication of a number archival documents showing information about the Soviet space program that until that time had been secret including the great number of Soviet failures in attempt to beat the Unites States. The novel's main theme is, in fact, the deconstruction of the Communist ideology throughout the parody of the Soviet space program which turns out to be a total deception. As Julia Richers points out, research on the history of Soviet space exploration have three main directions. The first is the *political history* of the Cold War which considers the space race and the development of ever more potent missile and spacecrafts as a part of the whole competition between the US and the Soviet Union. The second examines the *scientific and technological development* of the Soviet space programme which has been studied extensively starting form the 1980s when the majority of historical archives were opened to the public thanks to the abolition of censorship. The third concerns the *social and cultural history* of the Soviet Union and Russia regarding Soviet propaganda and the enthusiasm for cosmos. In particular, the theme of space exploration had great attention in the genre of the Soviet science fiction.¹² The present study explores the history of the Soviet space exploration from its origins in the late 19th century to the following space achievements during the Cold War which led to the launch of the world's first artificial satellite Sputnik 1 in October 1957 and the first man into space in April 1961. It deals also with the Soviet space propaganda as well as the impact of the enthusiasm for cosmos in the Soviet society which served as a means to increase the national pride and to

¹² Richers, Julia, "Space is the Place! Writing about Soviet Space Exploration", in *Soviet Space Culture. Cosmic Enthusiasm in Socialist Societies*, eds. Eva Maurer, Julia Richers, Monica Rüthers and Carmen Scheide, Palgrave Mcmillan, 2011, pp. 10-20.

enhance brotherhood both inside the Soviet Union and in the Eastern European countries.

CHAPTER I

The science fiction in the Soviet bloc: the case of Stanislaw Lem's *Solaris*

In a time when the conquest of the outer space was considered a race both ideologically and technologically, the Polish writer Stanislaw Lem describes the human desire of exploration as a testimony of the human will to spread the scientific knowledge throughout the universe. In his science fiction novel *Solaris* (1961), he writes:

“We take off into the cosmos, ready for anything: for solitude, for hardship, for exhaustion, death. Modesty forbids us to say so, but there are times when we think pretty well of ourselves. And yet, if we examine it more closely, our enthusiasm turns out to be all a sham. We don’t want to conquer the cosmos, we simply want to extend the boundaries of Earth to the frontiers of the cosmos. [...] We think of ourselves as the Knights of the Holy Contact. This is another lie. We are only seeking Man. We have no need of other worlds. A single world, our own, suffices us; but we can’t accept it for what it is. We are searching for an ideal image of our own world: we go in quest of a planet, a civilization superior to our own but developed on the basis of

a prototype of our primeval past. At the same time, there is something inside us which we don't like to face up to, from which we try to protect ourselves, but which nevertheless remains, since we don't leave Earth in a state of primal innocence.”¹

***Solaris* by Stanislaw Lem**

Starting from the mid-1950s the themes concerning space exploration such as the travel in outer space, the possible presence of human life in other planets or galaxies and the encounter with other forms of lives deeply inspired the so-called *nauchnaia fantastika* (hereafter NF). Stanislaw Lem is considered one of the greatest writers of the Soviet bloc science fiction alongside the Strugatsky brothers and Efremov. He was born on September 12th, 1921 at Lwow in Poland (now Lviv, Ukraine) to a Polish-Jewish family of laryngologists and studied medicine at the Medical Institute. Following the Nazi occupation during the Second World War, he completed his studies and began writing science fiction novels. The peak of his success came during the de-Stalinization when Poland experienced an increase in the freedom of speech.² As the majority of the NF writers in the Soviet Union and the Eastern bloc of that time, he shared the enthusiasm for a brighter future and the faith in the technological progress typical of the Communist ideology. An interesting philosophical essay which is helpful to understand Lem's view of the world is *Summa technologiae* (1964): it deals with questions concerning the future such as the technological advancement without limitations and its ethical consequences. Concerning this book he said that he did

¹ Lem, Stanislaw, *Solaris*. Trans. Kilmartin, Joanna and Cox, Steve, NY: Berkley, 1970, cit. p. 211.

² Lem about himself available on Lem's official website <http://english.lem.pl/> (consulted on 16/01/2013).

not write about what would happen but about what could happen, since he obviously had no influence on future development of science. In particular, in an interview he highlights:

“Literary realism, for me, is literature’s way of dealing with the real problems of a dual (at least) type. The first kind is the sort of problem that already exists or is coming into existence. The second kind is the sort that appears to be lying on the path of humanity’s future. Any attempt to differentiate *possible problems* from *fictional, or probable situations (albeit seeming outrageous today)* from *unlikely*, is probably too polarizing to be successful. In this field, it’s every man for himself, as long as the particular reasons for claiming the status of expert on dichotomies like the ones cited above are more or less respectable. Thus, anyone can be a selfmade authority on this subject, and so I am one.”³

His worldwide popularity granted him many prizes and honours such as the Prize of the Minister of Foreign Affairs for the popularization of Polish culture abroad and the honorary membership in the Science Fiction Writers of America in 1973 (from which he was expelled years later due to his low opinion of American science fiction), the Austrian State Prize for European Literature in 1986 and the Austrian literary Franz Kafka Prize in 1991. Lem died in Krakow on 27th March, 2006 at the age of 84 due to heart disease.⁴

³ Csicsery-Ronay, Istvan Jr., “Twenty-Two Answers and Two Postscripts: An Interview with Stanislaw Lem”, in *Science Fiction Studies*, n° 40, vol. 13, part. 3, November 1986. Retrieved from <http://www.depauw.edu/sfs/interviews/lem40interview.htm> (consulted on 12/01/2013).

⁴ “Stanislaw Lem”, Encyclopedia Britannica Online, 2012, <http://www.britannica.com/EBchecked/topic/884552/Stanislaw-Lem> (consulted on 18/12/2012); Grob, Thomas, Into the Void: Philosophical Fantasy and Factastic Philosophy in the Works of Stanislaw Lem and the Strugatskii Brothers”, in *Soviet Space Culture. Cosmic Enthusiasm in Socialist Societies*, eds. Eva Maurer, Julia Richers, Monica Rüthers and Carmen Scheide, Palgrave Mcmillan, 2011, pp. 42-56.

First published in Warsaw in 1961 and then translated in more than thirty languages, *Solaris* is probably Lem's best-known novel. It is considered "the bible of Russian NF" and the most philosophically sophisticated work of NF.⁵ *Solaris* is a very complex novel which is submitted to different interpretations: it could be read as a parody of the limited human capabilities in relation to the alien world, a tragic romance between human and non-human beings, an allegorical parable concerning scientific and rational knowledge and a metaphysical novel, but none of these could be completely satisfactory. *Solaris* is, at the same time, the most studied NF novel and the most incomprehensible one. In an interview with the Serb writer Zoran Živković, Lem himself expresses perplexities about its deeper meaning:

"You know, when I begin writing a book, I'm generally aware of what I want to write, what kind of genre will be, what the accent, what the style and so on. In the case of *Solaris*, something exceptional happened to me. This book was literary an adventure. I've written it completely spontaneously, so that step by step I expected certain surprise. [...] The inability to guess what I mean in *Solaris*, that is to say to solve its mysteries and, therefore, to draw the meaning as much correct as possible, does confirm the extremely irrationality of this work."⁶

⁵ Birgit, Menzel, "Russian Science Fiction and Fantasy literature", in *Reading for Entertainment in Contemporary Russia: Post-Soviet Popular Literature in Historical Perspective*, eds. Lovell, Stephen and Menzel, Birgit, Verlag Otto Sagner, Munchen, 2005, cit. p. 133.

⁶ De Turris, Gianfranco, "Solaris, o dell'irrazionale", in *Solaris* by Stanislaw Lem, Oscar Mondadori, 2007, p. 221: "Sì, quando inizio a lavorare a qualche opera, sono di solito cosciente di quello che voglio scrivere, quale sarà il genere del libro, quale l'accento, quale lo stile, eccetera. Nel caso di *Solaris*, mi è successa qualcosa di eccezionale. Questo libro, nel senso letterale della parola, è stato un'avventura. L'ho scritto del tutto spontaneamente, così che ad ogni passo mi aspettavo qualche sorpresa. [...] L'incapacità di indovinare che cosa ho voluto dire in *Solaris*, cioè di risolvere tutti i suoi misteri e, dunque, anche di trarne l'interpretazione più corretta, non fa che confermare l'irrazionalità estrema di questo lavoro."

Solaris is a mysterious celestial organism completely covered with a plasma-like substance which is called by humans “ocean”. For a long time, the most advanced scientists on Earth have attempted communications with it and tried to understand its mysterious phenomena. They worked on the so-called Solaristics, a scientific discipline which is based on the observation and analysis of the ocean’s surface. However, the instruments that the scientists have used in their research had the consequence to materialize strange humanoid presences. The psychologist Kris Kelvin is sent there to understand what is happening. As soon as he arrives onboard the scientific station hovering above the planet, these mysterious presences or “guests” (as they are called in the novel) begin to appear regularly. They seem to test the lucidity of the human mind by materializing their unconscious thoughts and disorienting them. Each scientist deals with them differently. For example, Kelvin’s friend, Gibarian, commits suicide because he is unable to sustain the situation; the assistant Sartorius locks himself in the laboratory in order to invent something capable to destroy the guests; the cyberneticist Snaut begins drinking due to the fear; Kelvin confronts himself with the physical materialization of his former wife Harey who committed suicide upon his dissolution of their marriage ten years before.⁷ The guests have human shape but appear to be indestructible. Their real purpose is not clear to the scientists but, at a certain point of the novel, Kelvin believes that Harey could be an instrument of exploration, maybe analogous to their previous x-rays bombarding. The turning point of the novel seems to be Kelvin’s disillusionment about his scientific thought: after having recognized that Harey is not a human being, he feels disoriented by the encounter

⁷ To avoid confusion, I will use the Polish original names for Snaut and Harey; the English translation which is actually a translation of the French version, changed their names to Snow and Rheyra.

with the Other. Despite his initial attempts to take the distance from her, he definitely decides to abandon the Earth and remain on the planet:

“True, I was not absolutely certain, but leaving would mean giving up a chance, perhaps an infinitesimal one, perhaps only imaginary... Must I go on living here then, among the objects we both had touched, in the air she had breathed? In the name of what? In the hope of her return? I hoped for nothing. And yet I lived in expectation. I did not know what achievements, what mockery, even what tortures still awaited me. I knew nothing, and I persisted in the faith that the time of cruel miracles was not past.”⁸

Thus, at the end of the novel Kelvin is able to analyse his situation from an outer point of view. He is conscious that a contact have been established and remains confident about future appearances.⁹

The guests are, at the same time, the projection of the characters' unconscious desires and the manifestation of their repressed fears. Scientists are, in fact, constantly in relationship between self and the Other, the natural and the artificial, the human and the non-human. They try to explain the ocean through scientific constructions but the appearances destabilize scientists' self-confidence and destroy their certainties. The end of the novel itself seems to reflect Lem's idea about the scientific knowledge according to which science has a limited nature and, for that reason, it is insufficient for understanding the vastness of the universe.¹⁰ This climate of uncertainty reflects itself in the language. Csicsery-Ronay notes that in *Solaris* every element in the text corresponds to other

⁸ Lem, Stanislaw, *Solaris*, cit. p. 211.

⁹ Csicsery-Ronay, Istvan Jr., “The Book is the Alien: On Certain and Uncertain Readings of Lem's *Solaris*”, in *Science Fiction Studies*, vol. 12, n° 35, part. 1, March 1985, retrieved from http://dpwadweb.depauw.edu/icronay_web/solaris.htm (consulted on 4/01/2013); Freedman, Carl, *Critical Theory and Science Fiction*, Wesleyan University Press, 2000, pp. 94-111.

¹⁰ De Turris, pp. 221- 234.

significant element which increase the mystery around the planet. For example, names such as the spaceship Prometheus which brought Kelvin to the station, the narrator Kelvin, the other characters Harey, Sartorius, Snaut and even the planet Solaris appear to be allusive but, at first reading, the reader does not completely understand to which they refer.¹¹ The behaviour of the planet is, as well, incomprehensible. As no scientific theory provides an impressive interpretation of it, scientists turn to religious explanations. For example, at the beginning of the novel *Solaris* is defined as “Type: Polytheria, Order Syncytialia, Class: Metamorphia” but, as scientists understand that they are dealing with an inexplicable phenomenon, they gradually catalogue the planet using terms more and more metaphysical than scientific such as “oceanic plasma”, “viscous monster”, “a world unto itself”, “posthumous child of long-dead myths”. Kelvin who aspires to the role of the wise psychologist gives a final explanation concerning Solaris as an imperfect god who is lost in the universe:

“I’m not thinking of a god whose imperfection arises out of the candor of his human creators, but one whose imperfection represents his essential characteristic: a god limited in his omniscience and power, fallible, incapable of foreseeing the consequences of his acts, and creating things that lead to horror. He is a... sick god, whose ambitions exceed his powers and who does not realize it at first. [...] This god has no existence outside of matter. He would like to free himself from matter, but he cannot...”¹²

¹¹ To cite only a few examples, *Prometheus* is generally a name associated with civilization and enlightenment in Greek mythology, but also with torment; the name Kelvin refers to the British physicist William Thomson, the inventor of the scale temperature based on the absolute zero; Harey is a very unusual name for the Polish reader, exotic and memorable.

¹² Lem, Stanislaw, *Solaris*, cit. p. 197.

Kelvin realizes that in the planet the scientific knowledge is no more useful in order to understand this mysterious phenomena.¹³

As Anthony Enns explores in his essay, recent criticism has interpreted *Solaris* as a novel focused mainly on the problem of communication itself rather than the contact with an alien intelligence. At the beginning of the novel, Kelvin, in fact, is unable to establish contact with the scientific research station on Solaris. Not only, even after Kelvin's arrival, communication between scientists themselves remains problematic: when the "guests" begin to appear, they avoid to speak in person preferring to stay in privacy and eventually communicate through videophones.¹⁴ In this context the role of Harey is emblematic. On the one hand, it is clear that she represents a non-scientific and ghostly figure. Initially, her presence makes Kelvin worried about his mental sanity but, with the passing of the time, he gradually becomes emotionally attached to her. She becomes aware of her transcendent being a neutrino body and depends on Kelvin both emotionally and psychologically. On the other hand, she offers to Kelvin the opportunity to take the distance from his previous life and change his fate. Thus, she is ready to sacrifice her life for love in order to help Kelvin and not as a reaction for his abandonment. At the end of the novel, only death itself is able to erase human suffering. It is her death, in fact, that allows Kelvin to drift away from his past sin and hope for a new future.¹⁵

The novel *Solaris* was adapted for the homonymous film made by the Soviet director Andrey Tarkovsky in 1972. The film adaptation had a huge

¹³ Freedman, pp. 94-111; Klapcsik, Sndor, *Liminality in Fantastic Fiction: A Poststructuralist Approach*, Mcfarland & Co Inc, 2011, pp. 84-120.

¹⁴ Anthony Enns, "Mediality and Mourning in Stanislaw Lem's *Solaris* and *His Master's Voice*", in *Science Fiction Studies*, vol. 29, no. 1, March 2002, pp. 34-52.

¹⁵ Csicsery-Ronay.

success especially in the West as much as it won the Grand Jury Prize at the 25th Cannes Film Festival.¹⁶ Although Tarkovsky followed Lem's story and even dialogues, his version is very different from the original. In fact, the film concentrates too much on human relations which are totally absent in the book such as family relationships and Kelvin's personal life on Earth. The film follows the plot of the novel including the mission to Solaris, the mysterious phenomena and the appearance of Harey; however, Tarkovsky altered its basic meaning. While Lem gave a great importance to the love story as a way to show how scientific framework has no meaning in front of the universe, Tarkovsky film celebrates human values and the power of love.¹⁷ For that reason, Lem expressed his dislike to the film:

"I have fundamental reservations to this adaptation. First of all I would have liked to see the planet Solaris which the director unfortunately denied me as the film was to be a cinematically subdued work. And secondly [...] he didn't make Solaris at all, he made Crime and Punishment. [...] The whole sphere of cognitive and epistemological considerations was extremely important in my book and it was tightly coupled to the solaristic literature and to the essence of solaristics as such. Unfortunately, the film has been robbed of those qualities rather thoroughly [...] My Kelvin decides to stay on the planet without any hope whatsoever while Tarkovsky created an image where some kind of an island appears, and on that island a hut.

¹⁶ Freedman, p. 106.

¹⁷ Johnson, Vida T. and Petde, Graham, *The Films of Andrei Tarkovsky: A Visual Fugue*. Bloomington SC Indianapolis: Indiana University Press, 1994, pp. 98-110.

And when I hear about the hut and the island I'm beside myself with
irritation..."¹⁸

The film was generally perceived as the Soviet response to the *2001: A Space Odyssey* by Stanley Kubrick. Despite Tarkovsky always denied that, he thought that in *2001* Kubrick forgot about the man and his moral problems preferring to show, like in a museum, the newest technological achievements.¹⁹ It is important to keep in mind, in fact, that both films were realised in full space race during the Cold War. In particular, *Solaris* was made at a time of great optimism and hopes for the future. For that reason, it could be seen as the cinematographic representation of the space exploration which describes in an optimistic way the national perspective toward the conquest of the cosmos. At the end of the film, in fact, Kelvin decides to stay on the planet because his scientific belief acts as a motivation for his future expectations.²⁰

A second adaptation of *Solaris* appeared in 2002 which starred George Clooney playing the role of the protagonist. The BBC defined it "one of the finest science fiction films since *2001: A Space Odyssey*", while the review of Time Out asserts that "it is perhaps the most ambiguous and cerebrally sophisticated Hollywood movie in nearly three decades". For the fact that it emphasizes the relationship between Kelvin and his dead wife excluding Lem's scientific and philosophic

¹⁸ Lem about the Tarkovsky's adaptation available on Lem's official website <http://english.lem.pl/> (consulted on 19/12/2012).

¹⁹ Andrei Tarkovsky' quotation available at http://people.ucalgary.ca/~tstronds/nostalgia.com/TheTopics/On_Solaris.html (consulted on 25/01/2013).

²⁰ Palmer, Landon, "Kubrick's *2001* vs. Tarkovsky's *Solaris*", in Culture Warrior, June 15th, 2009.

themes of the novel, it is considered to be the reinterpretation of Tarkovsky film rather than Lem novel.²¹

The Soviet/Russian science-fiction

Generally speaking, the genre of science fiction describes a world which stays between a scientific knowledge and a non-human reality: beyond the technological advancement, it implies metaphors which transform reality in fictional stories representing the author's standpoint and values. As Birgit Menzel notes, one of the greatest problems in the analysis of NF is the lack of reliable studies of popular fantastic literature.²² In the past, it concerned not only Soviet censorship and ideology but also the fact that critics preferred to avoid discussion about NF in order to protect authors and works. Although the precursors of science fiction appeared in the late 18th century, the term had been introduced in the Soviet Union in the late 1920s to indicate a new genre which mixed fiction, technological innovations and Soviet propaganda. Menzel perfectly describes NF as a genre:

“based on the idea of science and progress, science in the Marxist interpretation including not only natural science, but equally the laws of social and historical progress. The genre was closely linked to the communist utopian project of wealth and happiness for the masses,

²¹ Pierce, Nev, “*Solaris* is not what it appears”, in *BBC Movies*, UK Edition. Retrieved from http://www.bbc.co.uk/films/2003/02/04/solaris_2003_review.shtml (consulted on 27/01/2013); *Solaris* review in *Time Out*, retrieved from <http://www.timeout.com/us/film/solaris.html> (consulted on 27/01/2013).

²² In common studies of the genre, SF (the abbreviation for science fiction) is used to refer to the genre at large, including its Russian sub-genre, and NF (*nauchnaia fantastika*) refers specifically to the Russian current.

and would help to overcome the traditional gap between high and low,
or intelligentsia and mass culture.”²³

One factor which made NF really popular in the Soviet Union was its link with fantasy literature, but it is necessary not to confuse with them. First of all, fantasy is a very young genre which, in a certain sense, represents the evolution of science fiction and gained popularity only in the 1980s. Secondly, while NF is oriented towards the future and presents a rational explanation for every fantastic element, fantasy is based on the acceptance of the non-rational world. Thirdly, on the one hand, NF is deeply concentrated to the future evolution of the present reality where technological innovations played a crucial role; on the other, fantasy refers to an ancient and mythical past rejecting scientific claims. As a result, NF was a way to spread national pride and Soviet utopia especially after Stalin’s period.²⁴

Another factor which could explain its popularity among the Soviet public is its strict relationship with the development of the enthusiasm for cosmos. The scientific intelligentsia of the 1950s and the 1960s became increasingly linked to NF thanks to the empowerment of scientific education as a guiding force of Socialism. It is interesting to note that looking at the biographies of the most influential NF writers in the Soviet Union had scientific and technical backgrounds: Ivan Efremov was a palaeontologist, Boris Strugatsky an astronomer, Volodymyr Savchenko an electrical engineer, Lem Stanislaw was a physicist. Finally, what made NF popular among Soviets was its strong support by state-owned science magazines especially during the 1950s and the 1960s such as

Technika-molodezhi (Technology for Youth) and *Detskaja Literatura (Children’s*

²³ Birgit, Menzel, “Russian Science Fiction and Fantasy literature”, in *Reading for Entertainment in Contemporary Russia: Post-Soviet Popular Literature in Historical Perspective*, eds. Lovell, Stephen and Menzel, Birgit, Verlag Otto Sagner, Munchen, 2005, cit. p. 119.

²⁴ Birgit, Menzel, “Russian Science Fiction and Fantasy literature”, pp. 124-125.

Literature) which published also foreign science fiction novels for teenagers, *Nauka i zhizn'* (*Science and Life*) and *Znanie-sila* (*Knowledge is power*).

The first Soviet science fiction novel is Aleksei Tolstoy's *Aelita: Zakat Marsa* (*Aelita: The Sunset of Mars*) first published in the journal *Krasnaia nov* in 1922 and as a stand-alone novel in 1923. It is the story of an engineer, Mstislav Los', who convinces a Red Army soldier, Alexei Gusev, to travel to Mars together. After arriving on Mars, they discovered that the planet is inhabited by civilized Martians but its system resembles an early capitalism causing strong disparities between bourgeois and workers. While Gusev incites a proletarian revolution, Aelita, the queen of Mars falls in love with him who is finally forced to return to Earth. It is interesting to note that the novel presents some crucial elements of the Soviet science fiction of that time: the science and technological development, the romance and the dream of the cosmos, the bourgeois enemy and, of course, the Socialist revolution. The novel had a huge success among Soviet citizens and contributed considerably to the development of space travel in Soviet culture. The novel was reprinted many time and turned into a film soon after its publication by the director Iakov Protazanov.²⁵ Clearly, concepts used by NF such as the enthusiasm for cosmos and the use of science as a tool for a brighter future were strongly influenced by the so-called *Cosmism*, a philosophy that became very popular among Soviet intellectuals especially in the 1920s and then in the 1960s. *Cosmism* attracted the attention of many Bolshevik theorists, writers, scientists, artists, poets, architects who gathered in Moscow or at Tsiolkovsky's house to exchanges their opinions about space exploration and

²⁵ Siddiqi, Asif, "Imagining the Cosmos: Utopians, Mystics, and the Popular Culture of Spaceflight in Revolutionary Russia", in *Osiris*, 2008, pp. 277-280.

technological development. Even though Tsiolkovsky himself was very important for the spread of this philosophy, its main theorist was Nikolai Fyodorov (1828-1903) who published the essay *Filosofia obshchego dela* (*Philosophy of the Common Task*) dealing with the possibility of bodily resurrection and the idea of reconstructing humanity. In particular, his project concerned the resurrection of all dead fathers using science and technological progress in order to achieve happiness. Since there is not enough space on Earth to settle all the resurrected fathers, other planets might be found. It was from this project that the idea of explore the outer space arose. It is said that Fyodorov and Tsiolkovsky daily met at a Moscow library and, for that reason, that his ideas deeply influenced Tsiolkovsky's writings. In *Monizm vselennoi* (*Monism of the Universe*), the most complete work about *Cosmism*, and *Issledovanie mirovych prostranstv reaktivnymi priborami* (*The Exploration of Cosmic Spaces by Reactive Devices*), Tsiolkovsky asserts that colonizing the solar system would brought to the perfection of the humankind.²⁶

According to McGuire, the motivation for the technological interruption during Stalin's period seems to be twofold: on the one hand, the purpose was to recognize Marxism as the only science providing absolute truth about social law and the management of society; on the other hand, the regime wanted to maintain its right to pronounce upon any field whatever. As a result, the production of NF declined and nearly disappeared also because private journals and publishers went out of business due to both the abandonment of the New Economic Policy and the

²⁶ Ibid, pp. 265-268.

regime's repression and censorship.²⁷ In this period, the only author to obtain public acknowledge was Aleksandr Beliaev (1884–1942) whose works were strongly influenced by the figure of Tsiolkovsky and by the regime's ideology itself. To cite only a few examples, his best-known novel *Chelovek-amfibiia* (*The Amphibian man*) concerns the story of a young who has been surgically adapted to live underwater and investigates the moral integrity of scientific experiments and the socialist ideas of improving living conditions; *Prizhok v nichto* (*A Leap into Nothingness*) is the story of a group of capitalists who leave the Earth in the grip of a revolution travelling to Venus but, at the end, they prefer coming back home; the theme of Siberia was typical of the NF of the 1930s and emerged in the series *Pod Nebom Arktiki* (*Under Arctic Skies*) which glorify the Soviet military accomplishments in the region.²⁸

After Stalin's death, the renaissance of NF in the Khrushchev's "thaw" was clearly linked to the early Soviet achievements in space which marked the superiority of the Soviet Union in the space race against the United States. Khrushchev's de-Stalinization campaign was based on the certainty that technological and scientific development would create a brighter future and the conquest of the space would be the final stage of Communism. The ideas of immortality of man, the conquest of the Moon and other planets, the faith on Socialist principles were widely used as means for Soviet utopia. From a literary point of view, NF became the mainstream literature of the regime and gain

²⁷ McGuire, Patrick L., *Red Stars in Politics. Political Aspects of Soviet Science Fiction*, UMI Research Press, 1985, pp. 5-23.

²⁸ Pierce, John J., "Science Fiction in Perspective. Behind the Curtain", in *Reason*, May 1974, pp. 116-117. Retrieved from <http://www.unz.org/Pub/Reason-1974may-00116> (consulted on 5/01/2013).

enormously popularity in the Soviet Union.²⁹ In fact, as McGuire notes, the principal aim of the Soviet science fiction was to present a portrait of the future under Communism which reassured Soviet citizens and Eastern European members about the future and promote regime's successful outcome:

“It [science fiction] should demonstrate the universal validity of *Scientific Marxism* by depicting similar social developments on other planets. Problems which have a solution in principle (such as overpopulation) should be portrayed as solved, and problems for which no solution is evident (such as the role of human labor) should be ignored or played down through humorous treatment”.³⁰

The NF revival during the 1960s was associated with the publications of writers such as Ivan Efremov and the Strugatsky brothers. Ivan Efremov's *Tummanost'* *Andromedy* (*The Andromeda Nebula*, 1957) describes the travel to a remote planet, once populated but then destroyed by a nuclear disaster; particular attention is drawn to the social cultural aspects of the society which seem to justify the rebirth of Communist ideal. One of the NF representative novel in the “thaw” is *Trudno byt' bogom* (*Hard to Be a God*, 1964) by Arkady and Boris Strugatsky whose plot concerns a group of people from Earth who are charged to monitor the feudal activities of the population on another planet. As Menzel explains, the novel's main topics are, on the one hand, totalitarianism which is for the first time in the Soviet Union associated with Stalinism, and the encounter with other forms of living which is perceived as a mission to export civilisation and the Communist system but, at the same time, it is put into question. The key idea

²⁹ Menzel notes that between 1924 and 1929 about one hundred NF books were published, while between 1930 and 1956 they were only eighty. Moreover in 1965 the number rose again to about three hundred and between 1959 and 1956 1,266 new novels appeared.

³⁰ McGuire, cit. p. 81.

which passed from the book is that human progress could intervene violently in backward society and even turn into oppression.³¹ Despite the representation of the extraterrestrial beings was still similar to humans, starting from the late 1960s NF writers began to introduce into their novels encounters with aliens quite different from people. The extraterrestrial beings became, in fact, the image of the most fascinating Other of this genre especially during the “thaw”. They are rarely depicted as robots or Martians, but are generally portrayed as strange inhuman creatures, unable to communicate or interact and sometimes they appeared as the cause of confusion and giddiness challenging human mind and capabilities.³² The best example in this sense is the above-mentioned *Solaris* (1961) by Stanislaw Lem. Here, the condition of the human being in an alien planet is described as metaphysically distant and causing hallucinations to the cosmonauts; the alien is perceived as a complicated enigma that the human mental process is not capable to solve. At a later time, the Strugatsky brothers published *Piknik na obochine* (*Roadside Picnic*, 1972) which some years later had been turned into a film by Andrei Tarkovsky’s titled *Stalker*. The story is set in six zones on Earth where unexplained and strange events occurred; a group of stalkers are asked to investigate on these mysterious phenomena which are thought to be brought by aliens with the risk of becoming physically or mentally transformed by their passages through the zones.³³

³¹ Grob, Thomas, “Into the Void: Philosophical Fantasy and Fantastic Philosophy in the Works of Stanislaw Lem and the Strugatskii Brothers”, in *Soviet Space Culture. Cosmic Enthusiasm in Socialist Societies*, eds. Eva Maurer, Julia Richers, Monica Rüthers and Carmen Scheide, Palgrave Mcmillan, 2011, pp. 42-56; Menzel, Birgit, “Russian Science Fiction and Fantasy Literature”, pp. 124-125.

³² Menzel, Birgit, “Russian Science Fiction and Fantasy Literature”, pp. 134-135.

³³ “Science Fiction”, Encyclopedia Britannica Online, 2012, <http://www.britannica.com/EBchecked/topic/528857/science-fiction/235721/Soviet-science-fiction> (consulted on 27/12/2012).

With the passing of the time, the enthusiasm for the Soviet space achievement of the 1960s and the ferment of the de-Stalinisation had been replaced to a more ideological criticism which caused a division between the unofficial and the official. Consequently, it spread the idea that NF was no more written with the intention of providing a positive picture of the future but to encourage readers to think independently and to “come to serious doubts about the moral legitimacy of the Soviet regime, about the internal consistency of Soviet ideology”. After his rising to power, Khrushchev understood that the Soviet Union was suffering a technological and economic recession which caused discontent among the population. Therefore, he initiated a policy based on scientific education, decentralised economy and more openness to the West. In that context, literature played a central role as a privileged means of communication in Soviet public culture; in particular, NF writers represented a significant voice during the “thaw” with the aim of sharing Communist principles and enthusiasm for the future.³⁴ It was during *perestroika* that the disappearance of censorship and the growth of criticism toward the official mainstream literature had the main consequence of opening Russian culture to a more wide public.³⁵ In particular, as Donatella Possamai explains, the recession of the Soviet Union and the social and political changes affecting Soviet society in the late 1980s marked the return of the so-called *massovaja literatura* (meaning mass literature) whose main feature is the homogenization of the public’s tastes through the

³⁴ Csicsery-Ronay, Istvan Jr., “Special Issue. Soviet Science Fiction: The Thaw and After”, in *Science Fiction Studies*, n° 94, vol. 31, part 3, November 2004, retrieved from <http://www.depauw.edu/sfs/abstracts/icr94intro.htm> (consulted on 12/01/2013); McGuire, cit. p. 83.

³⁵ Genis, Alexander, “Borders and Metamorphoses: Viktor Pelevin in the Context of Post-Soviet Literature”, in *Russian Postmodernism: New Perspectives on Post-Soviet Culture*, eds. Mikhail Epstein, Alexander Genis, and Slobodanka Vladiv-Glover, New York: Berghan, 1999, cit. p. 215.

diversification of the genres.³⁶ Even if it is not possible to analyse post-modernist literature depending on the level of education of the reader but rather on gender and age, Menzel identifies four different characteristics of NF concerning the features of the plot. First, the final-stage NF concerns, as the name suggests, the global catastrophic issue which is mostly determined by sociological and political fantasies rather than advanced technologies such as genetic, cloning or other scientific innovations. The heroic or the ex-Soviet science fiction mixes Western heroic elements with the Soviet mythological tradition and what emerges is the Russian nationalist fundamentalism and anti-Semitism. Yuri Nikitin's series of twenty volumes titled *Troe iz Lesa* (*The Three Men from the Woods*, 1993) is the most popular example; it tells the adventures of three Slavic heroes representing ancient qualities like braveness, intelligence and sensitivity who are forced to fight against various tribes among which the Cimmerians who make use of black magic as a weapon. The novel clearly reveals a return of the Euro-Asiatic superiority, while the enemies are portrayed as hostile Semitic aggressors. The new Russian Slavic NF is strict tight to the name of Mar'ia Semenova who published the first Russian bestseller of the genre selling 300,000 copies. *Volkodav* (*Wolfhound*, 1996) contains elements of Slavic history and folklore and the hope for a national identity. Finally, the parodistic NF is maybe the most interesting current of the post-Soviet popular literature because mixes Soviet history and modern life with humour and irony that are absent elsewhere. For that reason, it could be said that it challenges NF traditional rules and it represents the

³⁶ Possamai, Donatella, "Vse my deti massovoj kul'tury...- Siamo tutti figli della letteratura di massa..." [We are all sons of the mass literature], in *Nei territori della slavistica. Percorsi e intersezioni: Scritti per Danilo Cavaion*, De Lotto, Cinzia and Mingati, Adalgisa (eds.), Padova, Unipress, 2006, pp. 313-327.

leading genre of popular literature among young Russian.³⁷ An original approach of this kind is to be found in the prose of Viktor Pelevin (born 1962) who is considered the most popular and talented postmodernist writer in Russia today. In making use of the Soviet heritage and history he does not simply parody it but he deconstructs it and introduces his own vision of the Soviet heroes. As Daria Kabanova notes, on the one hand, this deconstruction is the result of the collapse of the Soviet Union which exposed the mythological process of the Communist regime to a more favourable climate; on the other hand, the definitely disillusionment of the Communist utopia arose a sense of nostalgia concerning Soviet cosmonauts and past achievements in space.³⁸

Nowadays, one of the most interesting writers in Russia is Sergei Luk'yanenko whose most successful work is the pentalogy *Dozory* (written starting from the 1998) including *Night Watch* (*Nochnoy Dozor*, 1998), *Day Watch* (*Dnevnoy Dozor*), *Twilight Watch* (*Sumerechny Dozor*), *Final Watch* (*Posledniy Dozor*) and *New Watch* (*Novyi dozor*). It is set in contemporary Moscow which is inhabited by the humans and the so-called Others, vampires, wizards and witches in dispute to each others; it tells the story of the never-ending confrontation between its two opposing groups: the Night Watch and the Dark Others. Its success stays in Luk'yanenko's great ability to modulate the element of fantastic and include different popular genres, from the romantic novel to thriller and horror using ironic, metaphoric and utopian devices.³⁹

³⁷ Birgit, Menzel, *Russian Science Fiction and Fantasy literature*, pp. 141-149.

³⁸ Kabanova, Daria Sergueyevna, *Sites of Memory: Soviet Myths in Post-Soviet Culture*, PhD dissertation, University of Illinois, 2011, p. 191-192.

³⁹ Possamai, pp. 313-327.

Clearly, as Menzel suggests, much more research needs to be done regarding the Soviet/Russian NF such as the symbolism of the technological utopian fantasies, its relation with the popular culture, the role of journals in the development of this genre, the influence of the Western science fiction and its relation with the Soviet bloc NF like the Polish one.

CHAPTER II

The space race era from the Soviet bloc side

Throughout the Cold War, two powerful nations engaged in a space competition whose roots concerned different ideologies as much as strategic power. The Moon was only one component of this race, but after President Kennedy's speech in 1961 it became the metonymy for the whole conquest of the space. Thus, the first to reach the Moon would dominate not only in space but also on Earth itself. It was only during the summer of 1989 that Soviet censorship definitely permitted the publication of a number archival documents showing the details of the Soviet space program. Despite the early Soviet achievements, as more and more the information emerged in the late 1980s, many crucial features saw the light of the day especially concerning the great number of Soviet failures in attempt to beat the Unites States.

First steps

The Soviet space program took its origins in the late 1800s from the pioneering writings of a Russian school teacher, Konstantin Tsiolkovskiy (1857-

1935), who is considered to be “the father of Russian cosmonautics”.¹ He drew attention on rocketry and space exploration and dealt with theoretical problems of using rocket engines for orbital space ships. His studies culminated in 1903 with the publication of the most interesting and contributory work titled *Issledovanie mirovych prostranstv reaktivnymi priborami* (*Exploration of the Universe with Rocket-Propelled Vehicles*) which definitely proved with complex mathematical and physical analyses that a rocket could be used in space exploration. Although he was initially ignored by the entire scientific community, the year following the 1917 revolution Tsiolkovskiy was elected as member of the Russian Socialist Academy and in 1921 he was granted a pension for life in honour of his services and researches for the Soviet technological development.² Without any doubt, Tsiolkovskiy’s contributions in spaceflight and rocketry played a significant role in the development of the Soviet space program. Another remarkable name who influenced the history of Soviet rocketry was Yuri Kondratyuk born Aleksandr Shargey (1897-1942). In particular, in works like *Tyem, kto budet chitat ehtoby stroyit* (*Those Who Will Read in Order to Build*) and *Zauoyeuaniye mezhplanetnykh prostranstu* (*The Conquest of Interplanetary Space*) he dealt with important aspects concerning rocket dynamics and interplanetary flights. As Siddiqi highlights, one of his most important observations was the calculation of the trajectory which would take a spacecraft to lunar orbit and back to Earth and the use of gravitational energy in order to accelerate spacecraft. His achievements

¹ Johnson, Nicholas L., *The Soviet reach for the Moon: the L-1 and L-3 manned lunar programs and the story of the N-1 “Moon rocket”*, Cosmos Books, 2nd edition, 1995, cit. p. 5.

² Siddiqi, Asif A., *Challenge to Apollo: The Soviet Union and the Space Race, 1945-1974*, NASA SP-2000-4408, Washington, D.C.: National Aeronautics and Space Administration, 2000, pp.1-5.

would serve also American scientists to the development and launch of Apollo.³ The main contribution came from Fridrikh Tsander who planned the construction of an interplanetary spacecraft which combined elements of both airplane and rocket. In 1921, he took part to an inventors' conference on his project and three years later his project was published in the journal *Tekhnika i Zhizn* (*Technology and Life*) with the title *Flight to Other Planets* which entered more into details the construction of a rocket engine for spacecraft.

These personalities represented a great contribution to the creation of a group of young Soviet scientists in the 1930s who influenced the visibility of space exploration through exhibitions and publications not only within the Soviet Union. In order to reach a solid space program, they dedicated themselves to the establishment of small societies in the major Soviet cities such as Moscow, Leningrad and Kharkov which actively worked on rocketry advancement concerning space exploration. In 1931, the Group for the Investigation of Reactive Engines and Reactive Flight better known as the Moscow GIRD was particularly successful in studying rocket engines and missiles thanks to the support many Soviet and Eastern European researchers. Among them there was the director and the future main character of the Soviet space program, the mechanical engineer Sergey Pavlovich Korolev. During his lifetime his identity was surrounded by official secrecy; in fact, it was only after his tragic death in January 1966 that his name was revealed and, from this point on, he was gradually turned into a symbol for Soviet propaganda. Born on December 30, 1906 in Zhitomir, Ukraine, from the early age he was strongly interested in aeronautics; in 1926 he was accepted

³ Chertok, Boris, *Rockets and People. Creating a Rocket Industry*, NASA SP-2006-4110, Washington, D.C.: National Aeronautics and Space Administration, 2006, vol. 2, p. 413.

into the Bauman Moscow State Technical University where he could deepen the study of rocketry and aircraft design. At the time he was employed at the Central Aerohydrodynamics Institute (TsAGI), he came in contacts with many important engineers such as Tsander and Mikhail Tikhonarov. As members of the GIRD, they combined their efforts and in 1933 launched the first liquid-propellant rocket called GIRD-X which marked the beginning of the Soviet rocketry development. Following the growth of interest towards new technologies, it was definitely decided to expand the GIRD and the new-former group was called the Reactive Scientific-Research Institute (RNII). From this point forward, the RNII played a crucial role in the development of the Soviet rocketry program until the late 1930s when Stalin's Great Purges profoundly affected its progresses. Thus, the purges effectively eliminated millions of skilful people (scientists, researchers, writers, artists) interned in labour camp or executed.⁴ On the one hand, they had the effect of increasing the climate of terror among people and, on the other, they damaged the achievements realized until that time. For example, many members of the RNII were during the purges and then released after the World War II such as Valentin Glushko; while, many others were sentenced in a mock trial and executed such as Kleymenov and Langemak. By means of the People's Commissariat for Internal Affairs (NKVD), Korolev was charged of having contacts with an anti-Soviet organization and sentenced to ten years in the Kolyma camp in Siberia. After one year of forced-labour, he was transferred to a *sharashka* (a kind of special prison) where he could work on scientific projects

⁴ Graziosi, Andrea, *Dai Balcani agli Urali: l'Europa Orientale nella Storia Contemporanea* [From Balkans to Urals: Eastern Europe in Contemporary History], Donzelli Editore, Roma, 1999, pp. 100-108; Harvey, Brian, *Soviet and Russian lunar exploration*, Springer-Praxis, 2007, p. 6-9.

assigned by the Communist leadership. Fortunately, following the process of destalinization promoted by Khrushchev, Korolev was finally discharged.⁵

The outbreak of the World War II came as a surprise for the Soviet Union allowing Germany to advance rapidly in Soviet territory. As Siddiqi points out, at this time the Soviet government was not actually interested in the development of ballistic missiles in support of the war.⁶ However, Russian engineers were extremely fascinated by the German rocketry program which during the war had developed the first long-range ballistic missile, the commonly known V-2. Manufactured in 1942, it was used for the first time on September 1944 against Allied nations causing hundreds of casualties among civilians. Despite its victory, during the aftermath of the war the Soviet Union was totally destroyed and seriously worried about the number of human losses caused by the Great Patriotic War. After many studies especially following the dissolution, it is counted about 27 million of casualties.⁷ Nevertheless, the Soviet Union began investigating on the German rocketry program in order to exploit knowledge. As a result, it was planned to enter German Peenemünde rocketry centre and transfer all the main efforts on aviation and other military technologies from Germany to Soviet territory. In the late 1946 about one hundred German scientists with their families were brought in Gorodomlya Island about 200 kilometres northwest of Moscow and employed at the Branch No. 1 of the NII-88, a research bureau established in

⁵ Chertok, vol. 2, p. 18-19; Siddiqi, pp. 4-6.

⁶ Siddiqi, p. 18.

⁷ Graziosi, Andrea, *L'URSS dal trionfo al degrado. Storia dell'Unione Sovietica* [USSR from the Triumph to the Degrade. History of the Soviet Union] 1945-1991, Bologna, Società editrice il Mulino, 2008, pp. ; Zubok, Vladislav, *A failed empire. The Soviet Union in the Cold War from Stalin to Gorbachev*, The University of North Carolina Press, 2008, pp. 1-2.

March 1946 in Podlipki (the technical leader of the Germans was Grottrup).⁸ Their principal aim was the development of the Soviet space program; in particular, they worked on the creation of the Soviet version of the V-2 known as R-1 missile and the improvement of its engine. Even though the bureau was organized with departments covering practically every aspect of rocket development, the living conditions were not so healthy: the buildings were overcrowded, the heating often did not work and they were forced to work as much as they were physically capable.⁹

At that time the NII-88 was the most important institute for the development of the Soviet space program but it was not the only one. In fact, it could boast the collaboration of many other important institutions spread all over the Soviet territory. To cite only a few examples, the OKB-456 (the Special Design Bureau established by the Ministry of the Aviation Industry), the NII-885 (the Scientific Research Institute in the Ministry of the Communications Equipment Industry) and the NII-10 (the Scientific Research Institute in the Ministry of the Shipbuilding Industry). Moreover, in November of 1947 Korolev formed the Council of Chief Designers, an informal team of six talented engineers coming from different ministries who guided the Soviet space industry for decades. The Council included Korolev who was the chairman, Glushko (the chief of rocket engines), Nikolai Pilyugin (autonomous guidance systems), Mikhail Ryazanskiy (radio control systems) Viktor Kuznetsov (gyroscopes), and

⁸ Actually, the number of German scientists who enter Gorodomlya Island is not clear. Chertok speaks about 127 Germans (Chertok, vol. 4, p. 9), while Siddiqi identifies only 72 and about a total of 6000-7000 persons, including family members (Siddiqi, p. 24-25).

⁹ Siddiqi, pp. 80-84.

Vladimir Barmin (launch equipments).¹⁰ Following Stalin's authorisation on the production of the R-1 missile on April, the first tests began in September 1948 in Kapustin Yar, a desolate area in the Astrakhan Oblast on the bank of the Akhtuba River. Despite some failed launches, the successful flight was achieved on October 10, 1948 when the rocket was able to hit the target. Although Soviet scientists faced many difficulties concerning the lack of raw materials and the backwardness of several industrial apparatus caused by the war, it is important to highlight that the achievement of the first long-range ballistic rocket represented a crucial step in the development of the future rocketry production even though most of the technology used in the design was taken by Germans. As Siddiqi suggests, it could be said that the successful launches of R-1 "served as watershed events in the early history of the Soviet rocketry program".¹¹ Starting from that time, Soviet scientists began developing even more sophisticated technologies which led to the creation of the most expensive ballistic missile in Soviet capabilities, the R-3. Without any doubt, it represented another important step forward which definitely took distance from the German initial programs. The NII-88 worked on the R-3 project until December 1949 when it was formally approved its manufacture. However, soon after its development, more interesting findings and plans emerged which brought to the creation of a Special Design Bureau No. 1 (commonly know as OKB-1) of the NII-88 led by Korolev himself, an organization dedicated exclusively to the development of long-range ballistic

¹⁰ Siddiqi, p. 47; Johnson, p. 6.

¹¹ Siddiqi, p. 58.

missiles. The following studies allowed the creation of the R-5 with a quite entirely Soviet design whose tests began on March 15, 1953.¹²

At the very moment the need for German collaboration was coming to an end, in August 1950 it was decided for the repatriation of German scientists back to the German Democratic republic. They left the Branch No. 1 of NII-88 for their homeland in three waves: the first one in December 1951, the second one in June 1952 and the last one in November 1953 (including Grottrup). Undoubtedly, the seven years of involvement of German technology, expertise and scientists were essentials for the Soviet rocketry advancement which has been damaged by the purges and the World War II. Clearly, it could be said that the Soviet Union highly benefited of German knowledge and collaboration which, on the one hand, accelerated the development of the Soviet space program and, on the other hand, allowed the Soviet Union to gain new technical capabilities which prepared for the development of the first long-range ballistic missiles.

The early conquest of space

By the 1953 the Soviet Union had completely left behind the German antecedents of their missile program and moved toward the development of the ICBM effectively laying the foundations for the birth of the Soviet space exploration. Moreover, the death of Stalin in 1953 marked the beginning of a new era in the Soviet history. On the one hand, his death put an end on the climate of terror caused by the fear of purges and deportation in labour camps; on the other hand, it initially threatened the ballistic missile program due to an uncertainty on

¹² Johnson, p. 6.

its future. Fortunately, the emerging of Nikita Khrushchev as the leader of the Communist Party facilitated the conditions for space research thanks to his relatively liberal reforms and backing the progress of the early Soviet space efforts.

In 1955, the US administration announced the project for the launch of an artificial satellite around the Earth as part of the International Geophysical Year. The IGY took its origins from the International Council of Scientific Unions established in 1952 whose members proposed a worldwide program on geophysical research intended to allow scientists from around the world to take part in a series of coordinated observations. Although 46 countries originally agreed to participate in the IGY, more than 60 nations finally ended up cooperating between July 1957 to December 1958. Thanks to the earliest artificial satellites, the main success of the IGY concerned the use of rocketry to conduct studies on the atmospheres. During this period, Korolev's main goal was to beat the United States on trying to be the first to launch a satellite. At the same time, the URSS Council of Ministers approved the development of the world's first intercontinental ballistic missile (ICBM), the R-7 Semyorka (meaning in Russian "Number Seven") which was considered to be an issue of "state importance". After several failures, the R-7 was successfully launched in August 1957 allowing Korolev and his supporter Mikhail Tikhonravov (disciple of Tsiolkovsky's ideas) to seriously take into consideration the idea of using the R-7 design for launching a satellite into space.¹³ The fact that the R-7 had more technological capabilities gave the Soviet Union a crucial advantage that could be used to place a satellite

¹³ Siddiqi, p. 132.

into orbit or sent it to the Moon. The proposal for the development of the first artificial Earth satellite dated back to years before but it was performed in less than a month after the launch of the R-7 Semyorka. The brand-new satellite consisted of a pressurized sphere made of aluminium with a diameter of about 580 millimetres and four transmitting antennas of about 2.5 meters which would extend once the satellite was in orbit. The launch of the so-called Sputnik 1 (meaning “satellite” in Russian) on a rocket was successfully placed into orbit from the Baikonur Cosmodrome on October 4, 1957, four months before the US Explorer 1. It would be followed by the launch into orbit of a second spacecraft, Sputnik 2, carrying the first living being, a dog named Laika which was chosen from ten candidates thanks to her good temperament. Unfortunately, the spacecraft was not capable to return the dog on Earth and it died four days after the launch because of overheating and stress.¹⁴

Without any doubts, these steps forward marked a milestone for the worldwide scientific development and from that time forward, the course of human history would change forever. On October 5, 1957, an announcement about the launch of the Sputnik 1 was published on *Pravda* by the official Soviet news agency TASS which highlighted the secrecy that brought the Soviets to win an important battle of the space race without making explicitly references to the identities of the scientists who built up the satellite:

“As a result of very intensive work by scientific research institutes and design bureaus the first artificial satellite in the world has been created. On October 4, 1957, this first satellite was successfully launched in the USSR. [...] The successful launching of the first man-

¹⁴ Siddiqi, pp. 173-203.

made earth satellite makes a most important contribution to the treasure-house of world science and culture. The scientific experiment accomplished at such a great height is of tremendous importance for learning the properties of cosmic space and for studying the earth as a planet of our solar system. During the International Geophysical Year the Soviet Union proposes launching several more artificial earth satellites. These subsequent satellites will be larger and heavier and they will be used to carry out programs of scientific research.”¹⁵

Clearly, Sputnik 1 managed to enter a new phase of the Cold War. While in the late 1950s, the United States were confident about the fact that they were militarily, technologically and ideologically superior over the Soviet Union, the launch of the Sputnik 1 threatened this sense of US predominance, fearing the presence of an enemy capable of launching missiles of mass destruction.¹⁶ However, unlike the US government which in August 1958 established the National Aeronautics and Space Administration (NASA) with the aim of developing space program and aeronautics research, by the end of the 1950s the Soviet administration did not have any space agenda or long-range program for space technology. It is only two months after the launch of Laika that the Soviet space program began moving the first steps toward a well-organized list of goals strictly connected to the Soviet military. To cite only a few examples, it involved the creation of an artificial satellite capable of taking pictures of the Earth, the production of an apparatus for investigation of the lunar soil, the creation of flights of humans to other planetary bodies and especially their return to Earth.¹⁷

¹⁵ Both the original version of the “Announcement of the First Satellite” from *Pravda*, October 5, 1957 and an English translation are available on the website [http://data-freeway.com/plesetsk/b1957.htm](http://data.freeway.com/plesetsk/b1957.htm) (consulted on 13/01/2013).

¹⁶ Zubok, *A failed empire*, pp. 123-153.

¹⁷ Harvey, pp. 34-43; Johnson, p. 10-12.

Since 1958 the OKB-1 was engaged in the initiation of a new generation of unmanned probes called Luna with the aim of exploring and collecting information about the Moon and its environment both for scientific purposes and for planning future lunar missions. Many experiments have been carried studying the lunar soil's composition, gravitational condition and temperature. Despite some initial failures, the Soviet success came on January 1959 when the Luna 1 vehicle reached the vicinity of the Moon performing some important observation of the solar system. Even if the Luna 1 missed to hit the target and passed by the Moon of a distance of about 5.000 km, it took some important improvements which led to the creation of Luna 2 on September 1959 (which successfully reached the eastern surface of the Moon for the first time) and Luna 3 on October (which returned 29 pictures of the far side of the Moon never seen from the Earth).¹⁸

The Soviet triumph

Between 1960 and 1961, the Soviets launched seven unmanned flights which constituted program of the Vostok manned spacecraft (literally meaning "East", "Orient"). Among the successful launches that reinforced the confidence in the so-called Vostok program, it was the launch of the Sputnik 5 in August 19, 1960 which carried two dogs, Belka and Strelka, into orbit. After one-day spaceflight, the capsule landed and the dogs became the first living beings recovered safely from orbit. Despite the Nedelin accident occurred in 1960 causing the death of many Soviet workers temporarily interrupted the

¹⁸ Johnson, 8.

development of the space program, Korolyev was even more confident in putting a human being into space using the Vostok spacecraft whose design consisted of two main components: a descent module with the pilot cabin and the instrument module equipped with a braking engine.¹⁹ As a purely experimental vehicle, Vostok would have to safely carry a man into orbit and return him to Earth.

Meanwhile, physicians from the Soviet Air Force were charged to select the candidate cosmonauts for the first Soviet piloted spacecraft. Thus, in order to be comfortable in the small capsule which would carry them into orbit, they had to be physically fit, between twenty-five and thirty years old, no taller than 1.75 meters and weigh no more than seventy-two kilogram. In 1960, the Cosmonaut Training Centre was established in a secret location near Moscow known as *Zvyozdny gorodok* (literally “Star City”) under the control of Nikolay Kamanin, whose purpose was to supervise the training exercises and activities for the cosmonauts. By the end of February, the final list of the twenty candidate cosmonauts was approved: among them there was the name of the twenty-five-years-old Yuriy Gagarin. He was born in the village of Klushino in the Smolensk Oblast from a working-class family and since he was interested in space and flight, he enrolled at the Orenburg Higher Air Force School. In April 8, 1961, Kamanin officially recognised Gagarin as the first pilot and German Titov as his backup.²⁰ On the morning of April 12, all was ready for the launch which occurred at 09:07 Moscow time from Baikonur site. Fortunately, his liftoff went smoothly and Gagarin was able to watch the changing landscape of the Earth

¹⁹ The Nedelin accident was one of the world’s worst rocketry disasters that occurred at Baikonur Cosmodrome during the development of the Soviet R-16 ICBM. The missile exploded on the launch pad, killing more than one hundred among military and technical personnel. The accident took the named of Air Marshal Mitrofan Nedelin who was killed in the explosion.

²⁰ Siddiqi, pp. 243-247.

surface from a special window called Vzor (meaning “look”). Travelling in Earth orbit from an altitude of about three hundred kilometres, Gagarin described the world with these words:

“The earth is blue [...] How wonderful! It is amazing.”²¹

After completing an orbit of the Earth, the separation from the capsule took place and Gagarin prepared himself for the descent. After ejecting from his craft, the parachutes deployed successfully and began landing. Gagarin landed quite softly not far from the village of Smelovka in the Saratov Oblast about 280 km far from the planned landing site, just about one hour and fifty minutes after the launch. A woman with a girl, who was coming toward him, saw the cosmonaut for the first time, they hesitated for a small moment but finally they helped him calling the officials who took him to the local military base.²² After two days spent in Kuibyshev under medical supervision, on April 14 he flew to Moscow where Nikita Khrushchev with a full entourage of Communist Party officials welcomed Gagarin who was dressed in his air force uniform walking on the red carpet as a Soviet hero. The day after the launch, TASS agency’s announcement underlined the successful accomplishment of putting the first human into space:

“On April 12, 1961, the Soviet Union launched into orbit around the Earth the spaceship-satellite named “Vostok” - the first in history carrying a man aboard. The pilot-cosmonaut of the spaceship-satellite “Vostok” is a citizen of the USSR Air Force, Major Youri Alekseyevich Gagarin. [...] The realization of a manned flight into

²¹ “Gagarin - son of a peasant, star of space”, in *BBC News*, UK Edition, 1st April 1998. Retrieved from http://news.bbc.co.uk/2/hi/special_report/1998/03/98/gagarin/71823.stm (consulted on 26/12/2012).

²² Siddiqi, pp. 270-280.

cosmic space opens tremendous perspectives for the conquest of the cosmos by mankind”.²³

Clearly, Gagarin returned to Earth not only as a Soviet hero but also as an international celebrity. Moreover, Gagarin's launch dealt another blow to the US nationalism giving the Soviet Union the appearance of being technologically advanced. As a result, it pushed the American administration to invest heavily into manned space programs taking into consideration the idea of landing a man on the Moon surface for the first time within 1970. During President Kennedy's speech on May 25, 1961, he explicitly declared this challenge:

“Now it is time to take longer strides--time for a great new American enterprise--time for this nation to take a clearly leading role in space achievement, which in many ways may hold the key to our future on earth. [...] I believe that this nation should commit itself to achieving the goal, before this decade is out, of landing a man on the moon and returning him safely to the Earth. No single space project in this period will be more impressive to mankind, or more important for the long-range exploration of space; and none will be so difficult or expensive to accomplish.”²⁴

Not only the flight of the Soviet Vostok 1 opened a new belief in the Soviet Union as a peaceful nation and promoted its ideals to all countries, but also Gagarin's famous smile travelled around the world and was recognized as the bearer of Soviet pride. Four months later, Soviet cosmonaut Gherman Titov shattered Gagarin's mark by staying in space more than a day on Vostok 2. In August 1962,

²³ A full English version of the TASS Communiqué on the first man in space can be seen at http://ntrs.nasa.gov/archive/nasa/casi.ntrs.nasa.gov/19630043160_1963043160.pdf (consulted on 13/01/2013).

²⁴ Special Message to the Congress on the Urgent National Needs, May 25, 1961. Retrieved from <http://www.jfklibrary.org/Research/Ready-Reference/JFK-Speeches/Special-Message-to-the-Congress-on-Urgent-National-Needs-May-25-1961.aspx> (consulted on 13/01/2013).

the Soviet Union continued its conquest of space with the first simultaneous flight by two manned spaceships: Vostok 3 piloted by Andriyan Nikolaev (who for the first time was allowed to fly freely in zero gravity inside the cabin) and Vostok 4 by Pavel Popovich. Even if they did not attempt rendezvous as it had been previously planned, the mission showed important results for the future development of the spacecraft's guidance and the manoeuvring system. In June 1963, the joint flights of the last two Vostok spaceships marked a successful conclusion of the Vostok program: while Valery Bykovsky in Vostok 5 set a new record remaining almost five days into space, the twenty-four-years-old Valentina Tereshkova in Vostok 6 was the first woman to fly in space.²⁵ In a few words, it could be said that every single mission of the Vostok program represented a crucial leap toward the achievement of the Soviet space exploration. At the very moment that the Soviet Union gain confidence on its capacities, Korolev decided to directly respond to the US challenge beginning the development of the technologies which would brought to the creation of a manned lunar program.²⁶

The race to the Moon

On May 10, 1963, Korolev's draft plan titled *Assembly of Space Vehicles in Earth Satellite Orbit* described the development of a second-generation spacecraft, simply called Soyuz (meaning "Union" in English), which would be capable of taking the first Soviet cosmonaut around the Moon before the United

²⁵ Johnson, p. 12; Siddiqi, pp. 257.

²⁶ According to the resolution taken by the Soviet government on 3rd August, 1964 titled *On work involving the study of the Moon and outer space*, the date of the first lunar mission around the Moon was set in 1967 and the first Lunar landing mission in 1968. However, they would not be observed.

States.²⁷ However, in order to develop the Soyuz, Korolev had previously planned the creation of the Voskhod spacecraft (literally “Sunrise”) which was basically a modification of the Vostok capsule. The Voskhod program based on the expansion of space technologies, was initially motivated by the fact of challenging the US project Gemini with the aim of performing the first Moon landing with Apollo in 1969. Meanwhile, in order to gain experience with orbital manoeuvres, in the late 1963 the Soviet Union launched an experimental spacecraft, the Polet 1, which was the first satellite capable of moving from one orbit to another. This success was replied two years later with Polet 2.

While in October 1964 Voskhod 1 with the three cosmonauts Vladimir Komarov, Konstantin Feoktistov, Boris Yegorov travelled in Earth orbit, in March 1965 Voskhod 2 with Pavel Belyaev and Alexei Leonov on board established another milestone in space exploration when Alexei Leonov became the first person to make the world’s first EVA (extra-vehicular activity) for twelve minutes thanks to a special spacesuit. These achievements of the Voskhod program were of great importance both politically and technologically speaking: the fact that the Soviet Union succeeded to send three cosmonauts into orbit and made the first space-walk before the United States increased the belief according to which the Soviet Union could win the Moon race sending the first man on the Moon. Following only two manned Voskhod missions, the project was abandoned allowing the Soviet designers to concentrate on the Soyuz program which had been officially approved by the Central Committee of the Communist Party in at the end of 1963.

²⁷ Johnson, p. 12; Siddiqi, pp. 447

Thanks to the successes of Luna probes, in August 1963 Korolev managed to develop a more technologically sophisticated program called the N1-L3 with the purpose of landing Soviet cosmonauts on the Moon before the United States. It was formed of a lunar orbiting spacecraft which would serve as the mother craft and a small lunar cabin which would be used by the cosmonaut to descend to the lunar surface.²⁸ As Siddiqi highlights, “the N1-L3 was the most visible manifestation of the Soviet Union’s response to US President Kennedy’s 1961 challenge [and its] only *raison d’être* was to send a Soviet citizen to the Moon before an Americans”.²⁹ In a few words, it could be said that at this time the N1-L3 and Apollo projects represented the two cardinal points of the space race. Meanwhile, Khrushchev’s overthrow in the late 1963 marked the end of an era not only for the entire Soviet Union since he emerged as an important political personality playing a central role in the development of the Soviet rocketry and space technology during Cold War. Nevertheless, during Leonid Brezhnev’s mandate, Korolev was able to gain complete control of the manned space program and persuaded the new Soviet leader to seriously compete with the US Apollo. In particular, Korolev committed himself to two different piloted lunar flights in order to maintain the Soviet Union’s status of the most powerful nation in space; the first one was a human circumlunar flight and the second one was a lunar landing project. The huge priority to the Communist leadership was that both of them should be ready in time for the celebration of the fiftieth anniversary of the Bolshevik Revolution which would be perceived as a vehicle for Soviet

²⁸ Lindroos, Marcus, *The Soviet Manned Lunar Program*, MIT, 4 October 2011, pp. 4-5.

²⁹ Siddiqi, cit. p. 497; Chertok, vol. 4, p. 84.

propaganda.³⁰ Three years after the Kennedy's speech to go to the Moon, the Soviet leadership finally took on the challenge and began working on the prototypes of the Soyuz with the purpose of sending cosmonauts both around and on the Moon before the Americans.

Meanwhile, the ongoing development of Luna probes led to some unfortunate events. Luna 5 launched in May, 1965 with the purpose of confirming that the strength of the lunar soil would support a manned spacecraft crashed on the Moon surface some hours after the launch. Despite some other failures, in January 1966 Luna 9 managed to safely land on the Moon and even began transmitting photographic survey of the lunar landscape. It is considered to be the first lunar station to achieve a soft landing on another planetary body. The next lunar probe appeared some months later when Luna 10 became the first artificial satellite of the Moon. Clearly, these two achievements "represented a comprehensive and vigorous Soviet lunar exploration program which continued to stay ahead of similar US efforts".³¹ Discovering that the lunar soil was definitely capable of supporting a manned landing, the others major efforts came at the beginning of the 1970s when Luna vehicles managed to collect samples of lunar soil and return them to Earth. At the very moment that the US-Soviet space race was at the height, the Soviet efforts went through an interruption because of Korolev's unexpected death in January, 14 1966. His death was a tremendous shock for the entire community bearing in mind that he dominated the Soviet space program for over than twenty years. Even though during his mandate his identity was never revealed to the world in order to preserve him and his family,

³⁰ Siddiqi, p. 404-408.

³¹ Johnson, cit. p. 16.

he played a vital role as an intermediary between the chiefs of the design bureau and the Soviet politicians and leaders. Without any doubt he is considered the founder of humankind's first step into space. His successor was Vasily Mishin as the chief of the OKB-1 renamed TsKBEM (Central Design Bureau of Experimental Machine Building). Born on January 5, 1917, Mishin graduated at the Moscow Aviation Institute and became Korolev's deputy in the development of the ICBM. After the Second World War, Mishin worked in the group of the NII-1 in Germany and once he came to Moscow he had been engaged in the development of the N-1 rocket. At the end of the 1960s, the Soviet efforts to land a man on the Moon suffered a little crisis. In fact, Mishin had not the capabilities to carry on Korolev's inheritance about the space projects partly due to a decrease of funding following Khrushchev's death.

During the second half of the 1960s, it could be said that the Soviet Moon program was based on two parallel directions: on the one hand, the N1-L3 program with the aim of landing Soviet cosmonauts *on the Moon* and, on the other, the L-1 Zond spacecrafts (meaning "probe" in Russian, the prototypes of the Soyuz spacecrafts) with the purpose of sending cosmonauts *around the Moon*. Initially, the L-1 program assumed the primacy in importance with the launches of a series of unmanned experimental flights. As most of them were failures (like Zond 4 to 8) because of problems in the re-entry system, the Soyuz program became the keystone of the Soviet space program. Conceived by Korolev at the beginning of the 1960s, the Soyuz spacecraft would be able to land three cosmonauts on the lunar surface. The operating system would start from a booster which would place both the mother craft and lunar cabin directly into Moon orbit;

then the mother craft would separate from the capsule which would descend to the surface while the mother craft continued to orbit. Following the Moon exploration, the capsule would lift off, enter the lunar orbit and dock with the orbiting mother ship.³² At the height of the Moon race, the first test flight of the Soyuz was launched in November 1966 known as Kosmos 133. Because of some problems with re-entry system, the capsule began landing toward China; as a result, the self-destruction command was turned on and after almost three days of flight the capsule exploded. The next Soyuz spacecraft was prepared for a two-day mission in February 1967. As soon as the satellite was launched, it failed to respond to commands on its orientation system but remained controllable and the capsule began the re-entry. Even though it crashed on the ice of the Aral Sea, the test was considered to be successful enough to continue the program with the manned missions.³³ Thus, the Soviet Union planned the launch of Soyuz 1 and Soyuz 2 in April with the purpose of making rendezvous and transfer in orbit. First, Soyuz 1 would be launched with the sole cosmonaut Vladimir Komarov and the day after, another spacecraft would follow carrying three cosmonauts. While the two vehicles would dock in orbit, a pair of cosmonauts from the Soyuz 2 would transfer Soyuz 1 through EVA. Finally, Soyuz 1 would return to Earth with three cosmonauts on board, while the remaining cosmonaut on Soyuz 2 would land alone. On April, 23 1967, Soyuz 1 lifted off from Baikonur Cosmodrome. After a few minutes after the lift off, Komarov informed ground controllers that the left solar panel was not operative and a backup antenna did not deploy preventing any kind of manoeuvre. The State Commission was forced to take the

³² Chertok, vol. 4, p. 140; Harvey, p. 151.

³³ Siddiqi, pp. 574-576.

decision to cancel Soyuz 2 launch and recommended the immediate return Soyuz 1. At the appointed time, Komarov began the re-entry procedure performing a ballistic re-entry because of complications in the parachute deployment. Soyuz 1 began the landing procedure but nobody received a confirmation about the successful landing. When a helicopter was sent to find the capsule, the scenario was terrible: the wreckage of the spacecraft was lying on the ground near Karabutak in the Province of Orenburg and Komarov's body was buried in the crash. In retrospect, it could be said that the Soyuz 1 mission should not have been launched since it was not sufficiently tested.³⁴ Unfortunately, it represented a serious blow for the Soviet Moon program and the hope of landing a Soviet cosmonaut on the Moon was even more far away. In the aftermath of the Soyuz 1 catastrophe, the TsKBEM made know that the problems of the spacecraft would be solved and a series of unmanned missions resumed. In October 1967, Mishin announced that the main goal of the following two unmanned vehicles would be the reliability of the control systems of both them, while docking would be taken into consideration but not a required step. Following the launch of Kosmos 186, the system was working without fault so that it was decided to attempt a docking procedure. As soon as the second spacecraft, Kosmos 188, was in orbit three days after, it successfully docked with the second one. At this time, a terrible tragedy struck the Soviet Union at the end of March 1968: the death of the hero who had embodied the Soviet conquest of the space. After taking part of the launch of Zond 4, Gagarin died near Moscow during a routine training flight. Actually, Gagarin died under suspicious circumstances. The official report of the

³⁴ Harvey, pp. 129-143.

investigation commission into the accident explained that the causes involved a pilot error. However, about twenty years later the files were reopened and the new studies carried out that the crash was attributed to cumulative causes such as the faulty equipment and the violation of safety rules.³⁵

Meanwhile, the State Commission approved a plan concerning both the docking between two Soyuz spacecrafts and the transfer of two cosmonauts from one vehicle to the other. A test mission of this kind was attempted with the unmanned Soyuz 2 which lifted off in October 1968 and Soyuz 3 with the cosmonaut Georgiy Beregovoy on board which was launched the next afternoon. Although the two spacecrafts managed to move closely, the docking did not take place. The first successful Soviet docking of two piloted spacecraft in orbit occurred in January 1969. Forty-one-years-old Vladimir Shatalov in Soyuz 4 lifted off on January 14, while the next day Soyuz 5 with onboard the three cosmonauts Boris Volynov, Yevgeniy Khrunov, Aleksey Yeliseyev was launched. Once the two spacecraft hard docked at 11:20 Moscow time, Khrunov and Yeliseyev prepared for the transfer: they put on their special pressurized suits and after opening the hatch, they moved to Soyuz 4; they entered the spacecraft, pressurized the cabin and began the undocking procedure. Soyuz 4 with Shatalov, Khrunov and Yeliseyev was the first to return in Earth, while Volynov alone in Soyuz 5 experienced perhaps the most tragic re-entry in the history of the Soviet space program. Volynov noticed that the service module had not separated from the descent automatic mechanism that it to say he lost control of the spacecraft. The majority of land controllers believed that Volynov had little chance to live.

³⁵ Siddiqi, pp. 628-629; Chertok, vol. 2, p. 589; Harvey, p. 168.

The only thing he could do was waiting until the mechanism fortunately managed to work and the parachutes deployed partially. Finally, the hard-landing of the spacecraft only caused the breaking of some teeth. Without any doubt, Soyuz 4 and 5 represented not only the first docking of two manned spacecrafts in space and the transfer of cosmonauts in orbit, but also the “first completely successful piloted space mission in the post-Korolev era”.³⁶ Meanwhile, after the success of the first manned mission in Earth orbit with Apollo 7, NASA had managed to launch the Apollo 8 on December 1968 with Frank Borman, James Lovell and William Anders on board who became the first men to orbit around the Moon and return safely to Earth.³⁷ These important achievements had the effect, on the one hand, to further develop the US space program and, on the other, to mark the beginning of the Soviet technological breakdown of the years to come.

After many years of delay, the first N-1 rocket was launched in February 1969 but only 70 seconds after the liftoff, the rocket crashed down due to a fire in the control system. The second attempt for the N-1 was made on July but the rocket unexpectedly exploded causing the destruction of the launch pads. At the same time, the Apollo 10 mission has been capable of testing the procedures of a Moon landing arriving at about 15 kilometres from the lunar surface. Taking into consideration the fact that the United States were achieving success after success, the Soviet failures of these years definitely affected the belief of beating the United States to the Moon. Tensions arose when Neil Armstrong onboard Apollo 11 became the first human to walk on the lunar surface and returned safely on Earth. It was clear, in fact, that the mission had fulfilled the national goal

³⁶ Siddiqi, cit. p. 647.

³⁷ Johnson, p. 22-24; Lindroos, pp. 7-8.

proposed in 1961 by President Kennedy. As Siddiqi suggests, the United States “carried the baton on the last lap of the *space race*, inaugurated by the Soviet Sputnik twelve years previously”.³⁸ In fact, the plaque left on the Moon bearing President Nixon’s signature and the inscription “Here men from the planet Earth first set foot upon the Moon July 1969 AD. We came in peace for all mankind” as well as the well-known words of Armstrong “That’s one small step for man, one giant leap for mankind” effectively supported the mission as a victory for the entire humankind.

The fact that the United States had beaten the Soviet Union both in the circumlunar mission and in the landing on the Moon did not mean the total failure of the Soviet manned lunar program. The launches of the N-1 rockets continued for a brief period of time; however, both the third and the fourth attempts respectively on June, 1971 and November, 1972 were a totally disaster: the first vehicle was destroyed about 50 seconds after liftoff and the second exploded on air. While some Soviet engineers were confident on a successful reorganization of the N-1 program, the Soviet leadership was not so optimistic and finally decided for its cancellation in 1974. The suspension of the program was a devastating blow for the Soviet space program which caused a serious shock throughout the entire community. At the same time, Mishin had come increasingly under fire not only for the failure of the N-1 program but also for the difficulties experienced in the last years. As a result, Mishin was removed replaced by Glushko as the chief of the Soviet space program.³⁹ Over the next years, the Soviet space program was gradually reorganised, but the time had gone.

³⁸ Siddiqi, cit. p. 694.

³⁹ Harvey, pp. 183-239.

The Salyut era and the fading Soviet space program

Following the success of the Apollo 11 mission, it was clear that the Soviet Union could no longer overtake the United States on a Moon landing. However, the Soviet Union has never explicitly abandoned the lunar landing project.⁴⁰ Thus, the Soviet space officials succeeded on implementing the manned space program in order to find new options available for a prompt response to the US achievements. By the end of the 1969, the Soviet manned space program involved three distinct ways: the expansion of the lunar landing project N1 (which would be cancelled in 1974), a piloted mission to Mars, and the plan for the creation of the first Earth-orbiting station. At this time, the TsKBEM considered the creation of a space station the most ambitious plan and quietly shifted its focus in the development of test mission which would be used for the space station. At the same time, Mishin continued the development of the Soyuz program whose result would be helpful for the space station itself. Thus, he planned a joint launch of three Soyuz spacecrafts into Earth orbit, two of which would dock each other while the other would take photographs as proof of the experiment. The joint mission was attempted on October, 11 1969 with the first launch of Soyuz 6. The crew on board, Georgi Shonin and Valeri Kubasov, had the aim of taking photographs of Soyuz 7 and Souyz 8 while they were docking and testing welding in space. The day after, Soyuz 7 lifted off with Anatoly Filipchenko, Vladislav Volkov and Viktor Gorbato on board and was followed by Soyuz 8 comprising of Vladimir Shatalov and Aleksei Yeliseyev. An the very moment that the

⁴⁰ As Saddiqi writes, “the story of the race to the Moon does not end in 1969 – at least for the Soviets. From both political and propaganda perspectives, future advanced lunar landings cosmonauts offered a means to restore lost faith in the Soviet space program” (p.792).

spacecrafts jointed in a common orbit, Soyuz 7 and 8 attempted to dock but they were unable to approach each other and finally failed. Even though docking did not take place, generally speaking the mission managed to carry for the first time important experiments concerning welding in weightlessness.

On February, 9 1970 the State Commission had officially recognised the development of a new space station complex which would be realised possibly at the beginning of 1971. Technically called DOS-7K but commonly know first as Salyut and then as Mir, the Long-Duration Orbital Station was about 16 meters long and formed by a station proper and a transfer compartment for receiving the Soyuz ferry vehicles.⁴¹ Salyut 1 was designed and tested in a very short period of time and the launch was achieved in April, 19 1971. The crew of Soyuz 10 reached the orbit station some days later but did not dock properly so it was forced to make an emergency return to Earth. Another attempt was made in June. Vladislav Volkov, Georgi Dobrovolsky and Viktor Patsayev on Soyuz 11 managed to dock and enter the orbit station; however, they all died on their return because of a depressurization during the travel into space. This terrible accident was a stunning blow not only for the Soviet Union but also for the worldwide community. While Pope Paul in the Vatican offered prayers to the families of the cosmonauts and expressed sadness for “this unexpected and tragic epilogue”, President Pompidou wrote that “all Frenchmen, like me, admired their extraordinary exploits”. President Nixon on behalf of the United States told the Soviet leader:

⁴¹ The Russian term Salyut means “Salute” as a mark of respect for the cosmonaut Yiuriy Gagarin; in fact, the launch of the Salyut 1 was planned on the tenth anniversary of Vostok 1. The term “Mir” means “World” but also “Peace”.

“The American people join in expressing to you and the Soviet people our deepest sympathy on the tragic deaths of the three Soviet cosmonauts. The whole world followed the exploits of these courageous explorers of the unknown and shares the anguish of their tragedy. But the achievements of cosmonauts Dobrovolsky, Volkov and Patsayev remain. It will, I am sure, prove to have contributed greatly to the further achievements of the Soviet program for the exploration of space and thus to the widening of man's horizons.”⁴²

In addition to this terrible accident, Salyut 2 was another failed attempt to reach the orbit. The first successful space station occupation finally took place in July 1974 following the launch of Salyut 3 in June. After docking, the crew of Soyuz 4 spacecraft composed by Pavel Popovich and Yuri Artyukin entered the space station and spent about fifteen days inside. Unfortunately, it represented the only flight for this space mission since next Soyuz 5 failed to dock with the station.

If, on the one hand, these achievements were possible thanks to Mishin's work and determination within TsKBEM, on the other hand, he failed in performing an acceptable level of development. It was during his mandate that the worst accidents during space exploration occurred: Soyuz 1 and Soyuz 11 fatalities, the joint docking failures of Soyuz 2 and 3, Soyuz 7 and 8 and Soyuz 10 with Salyut 1, and finally the cancellation of the N-1 program. For all these reasons, in May 1974, it was decided for his dismissal.⁴³ What followed was a deep reorganization of the Soviet space apparatus with the creation of a new powerful institute, the NPO Energiya (*Energiya Scientific-Production Association*) with Glushko as chief leader. Its tasks were enlarged in relation to

⁴² Ivanovich, Grujica S., *Salyut - The First Space Station: Triumph and Tragedy*, Springer Praxis Books, July 7, 2007, p. 289.

⁴³ Harvey, pp. 154-162.

the OKB concerning the supervision of the manufacture and testing of almost all Soviet manned spacecrafts.

The period between the late 1960s and 1975 is characterized by a “thaw” in the US-Soviet confrontation when tensions were reduced and dialogue encouraged: the so-called *détente*.⁴⁴ In this period, yearly summits between Nixon and Brezhnev were held which led the Soviet Union to temporarily open its policy to the worldwide public. For the first time, the censorship permitted the publication of articles and books concerning Soviet space program and allowed the identity revelation of a few of Soviet space officials. For example, in March 1971, the name of Glushko appeared for the first time as the editor of an encyclopaedia about Soviet space technology and one year later, an American journalist was allowed to enter the Star city in Moscow.⁴⁵ Furthermore, the two superpowers were seriously engaged in their first space cooperation for the development of a joint mission as a symbol of relaxation. According to Brezhnev who made *détente* his personal goal, it would definitely leave behind all the failures of previous years and demonstrate to the entire world that the Soviet technology was not behind but at the same level as the US space program. In January 1967, the two superpowers signed the *Outer Space Treaty* which forbade the use of “nuclear weapons or any other kinds of weapons of mass destruction from space, the Moon and other celestial bodies”.⁴⁶ Moreover, this period was seen as an important step toward the reunification of the Europe divided by the

⁴⁴ Di Nolfo, Ennio, *Storia delle Relazioni Internazionali*, Laterza, Roam, 2008, pp. 1157-1173; Zubok, *A failed empire*, pp. 192-226.

⁴⁵ Romero, Federico, *Storia della guerra fredda. L'ultimo conflitto per l'Europa* [A History of the Cold War. The Last Conflict over Europe], Einaudi, 2010, pp. 224-281. ; *ibid*.

⁴⁶ Reynolds, David, “Science, technology, and the Cold War”, in Melvyn P. Leffler and Odd Arne Westad, eds. *The Cambridge History of the Cold War. Vol. III: Endings*. Cambridge, England: Cambridge University Press, 2010, cit. p. 386.

Cold War. In fact, 35 leaders of nations including the United States, the European States and the Soviet Union met in Helsinki in 1973 during the Conference on Security and Cooperation in Europe (CSCE). The result was the signature of the declaration known as Helsinki Final Act on July 1975 which took into consideration some important issues of that time such as the inviolability of national borders and the respect for territorial integrity. Even if at first glance the Conference seemed to consolidate the Soviet Union's Communist power within the Eastern Europe after the World War II, the most controversial issue concerned the so-called *third basket* on human rights regarding the Soviet Union's fundamental freedoms such as the freedom of emigration and reunification of families divided by borders, the freedom of thought, religion and belief.⁴⁷

The most memorable event during *détente* came in April 1972 when the *Agreement Concerning Cooperation in the Exploration and Use of Outer Space for Peaceful Purposes* signed by Nixon and Soviet prime minister Kosygin officially established the arrangement on the docking in orbit between a Soviet Soyuz and a US Apollo within the 1975. The mission was generally known as the *Apollo-Soyuz Test Project*, while in the Soviet Union it is called *Experimental flight Soyuz-Apollo* (EPAS). It was thought that the joint mission would mark the beginning for a peaceful dialogue and the opportunity for informal exchanges of knowledge between the US and Soviet scientists. In order to carry out this mission a universal docking module was designed by NASA to enable the dock and transfer between the two spacecrafts. While Soyuz 19 comprising Alexey Leonov (who was the first man to walk in space with Voshkod 2 in 1965) and Valery

⁴⁷ Romano, Angela, "Détente, entente, or linkage? The Helsinki Conference on Security and Cooperation in Europe in U.S. relations with the Soviet Union", in *Diplomatic History*, vol. 33, Issue 4, 2009, pp. 703-722.

Kubasov (who flew in Soyuz 6 in 1969), onboard Apollo there were the cosmonauts Tom Stafford, Vance Brand and Deke Slayton. The two spacecrafts were launched on July 15, 1975; two days later they docked and the cosmonauts Stafford and Leonov were able to exchange the historic handshake in space through the open hatch of Soyuz. At this very moment, the crews were read a message from Brezhnev:

“To the cosmonauts Alexey Leonov, Valeriy Kubasov, Thomas Stafford, Vance Brand, Donald Slayton. Speaking on behalf of the Soviet people, and for myself, I congratulate you on this memorable event... The whole world is watching with rapt attention and admiration your joint activities in fulfilment of the complicated program of scientific experiments. The successful docking had confirmed the correctness of the technical decisions developed and realized by means of cooperative friendship between the Soviet and American scientists, designers and cosmonauts. One can say that the Soyuz Apollo is a forerunner of future international orbital stations.”⁴⁸

While they were joined, the cosmonauts conducted a variety of experiments and shared their commemorative plaques and flags. After about 45 hours docking, the vehicles separated; while Soyuz spacecraft returned immediately to Earth, Apollo remained in space an additional six days. Clearly, the mission was considered a real success in the history of space exploration and effectively demonstrates the improvement relations of two political and ideological enemies. During the 35th anniversary of the mission, Stafford recalled:

“It was shown as a symbol to the rest of the world that two great superpowers with different languages, different units of measurement, and certainly different political systems could have a common goal

⁴⁸ Evans, Ben, *At home in space. The Late Seventies into the Eighties*, Springer, 2012, cit. p. 90.

they could work together to achieve. It was really the highpoint of the opening of the Iron Curtain and a great goodwill in the middle of the Cold War.”⁴⁹

Following this reunion in space, any hope of a further collaboration in space between United States and Soviet Union soon disappeared. Thus, during the late 1970s, the Soviet invasion of Afghanistan, the imposition of the martial law in Poland and the NATO's placement of cruise missiles in Europe worsened the climate of détente. While, on the one hand, it was becoming more and more difficult for the Soviet Union to maintain the high rates of development, on the other hand, détente exposed Soviet people to a major openness toward the Western economies growing Soviet dependence on the capitalist world. Moreover, the need for reforms both in political and social field increased the Soviet economic vulnerability of the years to come.⁵⁰

Nevertheless, the Soviet Union carried on the development of the Luna program. Following Luna 16 and Luna 20 vehicles which successfully landed on Moon and returned a sample of lunar soil, the last spacecraft to accomplish soft landing on lunar surface, Luna 24, was launched on August 9, 1976 from the Baikonur site; years later, some of the its samples would be studied also in US laboratories and universities. Moreover, the NPO Energiya continued the Salyut program which finally led the Soviet Union to conduct crucial achievement during the late 1970s. For example, the Salyut 6 launch in September 1977 represented one of the major success in the history of the Soviet space exploration; in fact, it hosted the greatest number of crews, a few of which were cosmonauts from the

⁴⁹ Pearlman, Robert Z., *First International Space Crew Reunites for Mission's 35th anniversary*, 16 July 2010. Retrieved from <http://www.space.com/8776-international-space-crew-reunites-mission-35th-anniversary.html> (consulted on 28/12/2012).

⁵⁰ Zubok, *A failed empire*, pp. 226-264; Romero, pp. 224-281.

other socialist countries. Another step forward was represented by Salyut 7 spacecraft which hosted the first woman to perform a space walk on July 25, 1984, the cosmonaut Svetlana Savitskaya. All these steps forward culminated with the development of the Mir station which was at that time the world's largest space station.⁵¹ The core module of Mir was about thirteen metres long and was launched into Earth orbit in February 1986; during the next decade, additional modules were sent on separate launch vehicles and attached to the block, creating a large habitat that served as a space laboratory for more than fourteen years. Some days after the launch, cosmonauts Leonid Kizim and Vladimir Solovyov were sent onboard a Soyuz spacecraft to dock with Mir becoming the firsts to occupy the station. Between January 1994 and March 1995, the cosmonaut and physician Valery Polyakov set an endurance record of 438 continuous days inside the station. Mir hosted many people from different countries and remained in service until March 2001.⁵²

Therefore, the interest on Moon exploration began slowly to diminish bringing the Soviet Union toward a major interplanetary exploration concerning especially Venus and Mars. Between the 1967 and 1975 the Soviet Union had already accomplished some launches of sophisticated probes on Venus such as Venera 9 in June 1975 which returned photographs of Venus for the first time. The exploration of its territory continued until 1983 when probes Venera 15 and 16 were capable of mapping the surface of Venus using high resolution imaging systems. As regards Mars, the first spacecraft to send an image of its surface dated back to December 1971 and after many years of interruption the exploration

⁵¹ Siddiqi, pp. 840-841.

⁵² "Mir", Encyclopedia Britannica Online, 2012, retrieved from <http://www.britannica.com/EBchecked/topic/384746/Mir>; Siddiqi, pp. 712- 786.

resumed in the late 1980s slowly revealing a particular interest for this planet.⁵³ The election of President Ronald Reagan in 1981 and his depiction of the Soviet Union as an “evil empire” temporarily brought back a policy of space competition. For example, in the early 1983 Reagan announced the Strategic Defensive Initiative (SDI) better known as “Star Wars” which was a missile program with the aim of detect and destroy missiles coming from the Soviet Union in order to defend the United States from an eventual nuclear attack. Clearly, The Soviet Union felt threatened about this program and tensions emerged on September 1st 1983 when a Soviet jet fighter shot down a Korean civilian airliner over the Sea of Japan claiming it was on a spy mission by the United States.⁵⁴ As a matter of fact, the Soviet Union could no longer directly compete with the United States because it lacked both of financial resources and political stability to carry on scientific missions. Moreover, the Soviet bloc became more and more dependent on Western Europe in terms of investments, new technologies and consumer goods due to the development of the satellites technologies which allowed much diversity of information and debate but, at the same time, threatened the Communist leadership. For that reason, until the mid-1980s in both the Soviet Union itself and in most Eastern European countries post, television and phone were under government control which caused, at the contrary, a revolution in communications; that is to say, while the Soviet regime

⁵³ Harvey, pp. 287-395.

⁵⁴ Di Nolfo, Ennio, *Storia delle relazioni internazionali*, Roma, Laterza, 2008, pp.

could block the movement of people, there were not possibilities to interrupt the air waves coming from Western radios and televisions.⁵⁵ As Reynolds explains,

“The Soviet system, by contrast [to the US system] suppressed the civilian economy and restricted the flow of information. In the short term, this enable the Soviet Union to punch above its economic weight as a military power. By the 1980s, however, technology and information had become the Soviet Achilles heel.”⁵⁶

As a consequence, the need of the Eastern Europe countries to affirm their autonomy became increasingly stronger due to their discontent toward the Communist leadership. The rise to power of Mikhail Gorbachev in 1985 was emblematic in this sense. In fact, he realized the importance to abandon the so-called Brezhnev Doctrine based on the use of the military force to preserve Communism and to definitely open the country to the Western Europe and the Soviet Union. On the one hand, his watchwords of *perestroika* and *glasnost*’ entailed radical changes concerning freedom of speech and economic reconstruction system; on the other, the interruption of the space race with the Unites States allowed Gorbachev and Reagan to negotiate important step forward for cooperation such as the INF Treaty signed in 1987 regarding the destruction of the existing weapons. The climate finally changed when the television images of the fall of the Berlin Wall on November 9th 1989 entered Eastern European countries and stimulated the need for independence among the Eastern Europe Communist regimes. The improvement of the US-Soviet relations following the

⁵⁵ Zubok, Vladislav, *Soviet Foreign policy from Détente to Gorbachev, 1975-1985*, in in Melvyn P. Leffler and Odd Arne Westad, eds. *The Cambridge History of the Cold War. Vol. III: Endings*. Cambridge, England: Cambridge University Press, 2010.

⁵⁶ Reynolds, cit. p. 378.

1991 *coup d'état* brought to a cooperation such as the International Space Station (ISS) which would merge American and Soviet space projects.

CHAPTER III

The enthusiasm for the cosmos and Soviet propaganda

Ever Higher. March of the Aviators is one of the most popular Soviet songs of the 1930s whose first two lines turned into a slogan for the whole space generation:

“We were born to make fairy tales come true,
to conquer distances and space.
Reason gave us steel wings for arms
and a flaming motor for a heart.
And higher, and higher, and higher
we aim the flight of our wings.
And the hum of our propellers
spreads peace along our borders.
Our sharp gaze pierces every atom.
Our every nerve bold and resolute.
And trust us, to any ultimatum
our Air Force will give an answer”.¹

¹ Boym, Svetlana and Bartos, Adam, *Kosmos: A Portrait of the Russian Space Age*, New York, Princeton Architectural Press, 2001, cit. p. 88.

The song was adopted to exalt the Communist ideology of a brighter future and glorify cosmonauts' achievements as a national pride in a period when space exploration was seen as a symbol of Soviet capabilities during the Space Race. The official Soviet space propaganda was a very complex phenomenon concerning, at the same time, mass communication and consumer goods, persuasion and censorship, military and political ambitions. It was able, in fact, to mix the enthusiasm for cosmos with patriotic sentiments.

Soviet propaganda issue

The launch of the Sputnik followed by other main accomplishments of the Soviet space program reinforced the international image of the Soviet Union destroyed by the atrocities of Stalinism. In fact, Khrushchev's denunciation of Stalin's crimes during his *Secret Speech* at the XX^o Congress of the Communist Party in 1956 shocked the delegates and undermined the legitimacy of the Communism both within the Soviet Union and abroad. Through reporting Stalin's use of mass terror, the unjustly execution and the fake processes, Khrushchev's intention was to destroy Stalin's reputation and to re-approach to the original Leninist model. It also gave rise to a period called Khrushchev's "thaw," during which censorship policy was relaxed and many prisoners of the labour camp were released weakening the Communist's power over the Soviet bloc. Therefore, it created a fascination for the future that explicitly merged Socialist ideology and cosmic enthusiasm.²

² Graziosi, Andrea, *L'URSS dal trionfo al degrado. Storia dell'Unione Sovietica* [USSR from the Triumph to the Degrade. History of the Soviet Union] 1945-1991, Bologna, Il Mulino, 2008, pp. 178-218; Zubok, Vladislav and Pleshakov, Costantine, *Inside the Kremlin's Cold War. From Stalin to Khrushchev*, Harvard University Press, 1996, pp. 174-182.

The dream of the cosmos as the place of the future had a long tradition in the Soviet Union and dated back to the late 19th century. During his life, Konstantin Tsiolkovskiy, the first to connect the dream of the cosmos to more practical considerations, had no financial or institutional support from the State to carry on his research about rocket travel and aviation. In fact, he was initially ignored by the entire scientific community and forced to finance his publications from his own pocket. It was only in his later years that Tsiolkovskiy gained public recognition by the Communist Party which began publishing his works and studies. His ideas about the expansion in outer space attracted great attention and after his death Tsiolkovskiy was made into a national hero by Soviet propaganda: he was celebrated as “one of the greatest Russian scientists”, “a brilliant son of the people”, “a prophet of the new era”; a larger-than-life monument was built in Moscow and his home in Kaluga was turned into a museum; as in the case of other eminent scientists and cosmonauts, his portrait was print on stamps, matchboxes, postcards and many streets, schools and buildings took his name.³ During Stalinism space exploration was part of in the industrialisation and technological progress whose purpose was the support of the Communist power and his personality. At the contrary, during Khrushchev’s “thaw” space flight gradually gained more consideration and renewed expectations on the future of Socialism which was evident in the wave of popular enthusiasm for Soviet space exploration. It was in this period that cosmonauts were considered to be the new

³ Hagemeister, Micheal, “The Conquest of Space and the Bliss of the Atoms: Konstantin Tsiolkovskiy” in *Soviet Space Culture. Cosmic Enthusiasm in Socialist Societies*, eds. Eva Maurer, Julia Richers, Monica Rüthers and Carmen Scheide, Palgrave Mcmillan, 2011, pp. 27-41.

conquerors of the cosmos and the bearers of the Soviet political, technological and economic superiority.

During the Third Party Program, Khrushchev predicted that “the present generation of Soviet people would live under Communism”. With this confident claim, Khrushchev intention was to give a final blow to religion. In fact, despite more than forty years of anti-religious campaign as part of the Soviet policy, people continued to turn much of their attention to religion. Therefore, anti-religious campaigns were used by the regime to develop confidence on the Soviet science enlightenment at the expense of the darkness infused by religion.⁴ Thus, the main approach of the atheist propaganda was, on the one hand, the destruction of religion’s influences among Soviet population and, on the other hand, the demonstration of the Communist triumph over nature. In this period, many churches were turned into planetaria which were considered to be the best places to inform people about Soviet science achievements and spread the materialistic conception of the world typical of the Communist ideology.⁵ The first planetarium in Moscow dated back to the late 1920s and became an educational centre for the population: it hosted many lectures, visitors and organised even a theatre putting up plays about Galileo and Copernicus. With the passing of the time, the anti-religious campaigns saw the birth of the *mobile planetarium*, a bus quipped with a telescope used for lectures which went around rural areas of both attracting local

⁴ Richers, Julia, and Maurer, Eva, “Introduction to Part I” in *Soviet Space Culture*, cit. p. 25; Smolkin-Rothrock, Victoria, “Cosmic Enlightened. Scientific Atheism and the Soviet Conquest of Space”, in *Into the Cosmos: Space Exploration and Soviet Culture*, eds. James T. Andrews and Asif A. Siddiqi, University Pittsburgh Press, 2011, pp. 159-194.

⁵ As Smolkin-Rothrock explains in her article, the fact of transforming churches into planetaria had both practical and ideological explanations. On the one hand, the church cupola could be easily turned into the observatory; while, on the other, it made explicit the state’s battle against religion. In this way, many planetaria have been born in major Soviet cities such as Kiev, Riga and Novgorod so that the number rose from thirteen in the mid-1950s up to seventy in the 1970s.

population with information about the cosmos. As Smolkin-Rothrock points out, in the mid-1950s atheists were working with two fundamental elements about the nature of religion: the first one concerns religion as a matter of poverty and misery, while the second one is based on the idea that religion is connected to ignorance. For that reason, Soviet people would overcome religion preferring scientific and social improvements promised by Communism. During a Central Committee conference, the cosmonaut German Titov said:

“I do not know even one prayer and have never even heard one, because I, like all of my cosmonaut friends, grew up in our socialist reality and studied on our Soviet schools. Later, when I was getting higher educated, and now at the Academy, no one ever spoke to me about this religion [...] And if by chance I came across some books, then, with rare exception...these books were so boring that, unless there was a real necessity, one doesn't really want to read them”.⁶

This statement shows that, during the early Soviet achievement of the Soviet space program, cosmonauts were a tool of the Soviet propaganda because they were considered the icons of the limitless and fearless human attitude in opposition to the weakness produced by religion. Anti-religious campaigns lasted for many decades, at least until dissolution when political and social openness favoured a relaxation of tensions toward religion.

One of the main protagonists of the Soviet space program whose image was used by Soviet propaganda was the chief designer Sergei Korolev responsible for the production of the R-7 and the launch of Sputnik. Despite during his lifetime his identity was surrounded by official secrecy, after his tragic death in

⁶ Quoted in Smolkin-Rothrock, Victoria, “The Contested Skies. The battle of Science and Religion in the Soviet Planetarium”, in *Soviet Space Culture*, cit. p. 67.

January 1966, his name was revealed and, from this point on, he was gradually turned into a symbol for Soviet propaganda: his ashes were buried at the Kremlin, a memorial plaque was installed at his birthplace in Ukraine; the Kuibyshev Aviation Institute and the street in Moscow where he lived took his name; both his house in Moscow and his cottage at the Baikonur launch site became museums; monuments were erected in Moscow, in Kiev, at Baikonur and Kapustin Yar. Not only, in 1972 it was produced *Ukroshcheniye ognya (Taming of the time)*, a Soviet movie showing for the first time Soviet space engineers at work. The film directed by Daniil Khrabrovitsky depicted Korolev as a handsome and intelligent person, an exemplary husband and father. However, it is important to stress the fact that the movie did not represent facts and events as they occurred but, as scholar Gerovitch recalls, it was an example of the Socialist concept of the *artistic truth* which brought millions of viewers to identify themselves with Korolev's personality. The movie was a huge success so that it is transmitted every 12th April on the Cosmonautics Day.⁷

At first glance the launch of the Sputnik was not perceived as a military threat but as a symbol of the Soviet science achievements. Its impact on the US policies could be clearly summarized with the well-known phrase *Sputnik shock* referring to the loss of confidence on the American technological progress. Khrushchev did not immediately realize the huge propagandistic value of Sputnik. Once he comprehended the impact that it would have both on worldwide population and Soviet citizens, he ordered the chief designer Korolev to send another satellite (this time it carried the first dog Laika) into space which

⁷ Slava Gerovitch, "Memories of Space and Spaces of Memory" in *Soviet Space Culture*, pp. 94-95.

coincided with the 40th anniversary of the Bolshevik Revolution. The same happened after Gagarin's flight, but, at this time, Gherman Titov, the second man into space, allowed to distract the attention from the construction of the Berlin Wall.⁸ The point is that, on the one hand, the first artificial satellite and the following achievements into space marked the Soviet technological and scientific superiority in opposition to the United States; on the other hand, this leap into space seemed to legitimize the political system in terms of re-launch of Socialism throughout modernity. As Schwartz explains, the wave of interest in space exploration gained popularity within a short time among Soviet citizens. People, indeed, could no longer ignore the omnipresence of cosmos and space exploration in every aspect of life which marked the beginning of the cosmic era.⁹ Just one year after the launch of the Sputnik, the Soviet Union could promote its celebration during the World Fair exhibition better known as Expo '58 held in Brussels where visitors from all over the world could admire for the first time two replicas of the first Earth's artificial satellite. It was also the first exhibition after the World War II and became an important cultural battleground in the context of the Cold War rivalry. From the Soviet side, the Expo '58 was perceived as "an unprecedented and unmissable opportunity to propagandize openly the superiority of Socialism and demonstrate the achievements of the Soviet Union".¹⁰ Since the two superpowers' pavilions were into close proximity, it put them in direct competition to each other. In order to demonstrate both the power and the

⁸ Boym and Bartos, pp. 88-89.

⁹ Schwartz, Matthias, "A Dream Come True. Close Encounters with Outer Space in Soviet Popular Scientific Journals of the 1950s and 1960s" in *Soviet Space Culture*, pp. 232-237.

¹⁰ Reid, Susan, "The Soviet Pavilion at Brussels '58: Convergence, Conversion, Critical Assimilation, or Transculturation?" in *Cold War International History Project*, December 2010, working paper n. 62, cit. pp. 16.

elegance of the Soviet architecture, the Soviet pavilion was a simple parallelepiped made of steel and glass of about 22 meters high designed by a team of young Moscovite architects. Moreover, it showed (or at least it would have to) the rise of the mass living conditions of the Soviet society after regression during Stalinism emphasizing the welfare system, socialist benefits, improvement of worker's status, high quality of consumers goods. The Soviet pavilion was one of the most visited of the whole exhibition: of the total about 10 million visitors to the Expo, over seven million visited the USSR pavilion.¹¹ The period between the launch of the Sputnik and the opening of the exhibition was considered to be the peak of the Soviet international prestige and the best occasion for using Sputnik as a tool to make Soviet people feel pride for their nation.

Taking into consideration the cases of Tsiolkovski and Korolev, figurative representations about eminent scientists and engineers helped, with the course of the time, to imprint in the collective memory the importance of celebrating the Soviet scientific and technological progress. In a few words, the establishment of national heroes, the commemoration of anniversaries and the publication of books, articles and movies about space exploration and its protagonists were all means for reinforcing Soviet national identity throughout cultural memory.¹² Clearly, Soviet propaganda was based on the necessity of spreading positive information about technological progress and Socialist principles in order to create a sentiment of patriotism and stimulate the creation of a collective memory. As Ereemeeva highlights, collective memory was based on different channels for mass persuasion: the diffusion of official messages and

¹¹ Reid, pp. 1-5; Siedelbaum, Lewis H., "Sputnik goes to Brussels. The exhibition of a Soviet Technological Wonder" in *Soviet Space Culture*, pp. 170-171.

¹² Ibid, pp. 85-88.

commentaries about the flights by political exponents, the transmission of interviews and programs with cosmonauts and their relatives, the publication of articles, poems, song and biographies of space heroes and the opening of exhibitions and museums about space exploration.¹³ There was the need, in fact, of increasing the patriotic spirit even in the most remote region of the Soviet Union. In this way, the non-governmental organizations were fundamental thanks to their capacities of cooperate with governmental institutions, industrial structures and regional organisations. The beginning of their development was in the late 1950s but reached the peak during the 1960s especially when space exploration had a huge influence in emphasizing the Soviet technological and scientific pride. During this period, many museums were opened, conferences and exhibitions about space technology were held and books about cosmonauts were published. Among the several NGOs spread all over the country, there were the *Soviet/Russian Federation of Cosmonautics* headed by the cosmonaut Nikolai Rukavishnikov, the *All-Russian Youth Aerospace Society (VAKO) "Soyuz"* which benefited from state support and the *Association of Space Museums of Russia (AMKOS)* specialized in the involvement of young people. Generally speaking, their main purpose was to involve students and children in creative youth programs for space education with the collaboration of academic institutions. One of the most important social movements was the *Kuban and Cosmonautics* established in the 1970s in the Krasnodar region whose goal concerned the preservation of the regional heritage through the creation of museums and

¹³ Ereemeeva, Anna, "The Regional Dimension of Space Propaganda" in *Soviet Space Culture*, pp. 139-150.

memorial spaces in order to keep the memory of the Soviet space history alive.¹⁴ Thanks to the work of this association and the Glushko's economic support, in 1972 it was opened the first school space museum dedicated to the spaceflight pioneer Yuri Kondratyuk (his real name, Alexander Shargei, was kept secret) which contained a memorial museum and a monument to the scientist.¹⁵

Another important issue of Soviet propaganda was the relationship between *childhood* and *cosmos* which became evident at the very moment that cosmonauts appeared in newspapers, television, stamps and so on. Even Khrushchev and Tereshkova during their speech on 22nd June, 1963 underlined the key role of the rising childhood regarding the future of Soviet space exploration and technological progress. As a result, the wave of enthusiasm propagated in children's media and schools where teachers were asked to prepare children for assuming working careers in the scientific field.¹⁶ The fact is that children growing up in the early years of the Soviet space program lived in a society fulfilled of optimism for the future and confident about science and technological development. Schools' walls were painted with scenes from the space, children could play with spacecraft-shaped toys, space travel was a central subject in Soviet children's books and children were encouraged to emulate cosmonauts. As Boym recalls, cosmic enthusiasm deeply involved youth generation and every Soviet child dreamed of becoming cosmonaut rather than

¹⁴ Kuban is often-used name of the Krasnodar region named for the river that runs through the area. It is collocated in the Southern Russia, on the Black Sea between the Don Steppe, Volga Delta and the Caucasus. Despite this region was not notably known, many scientists and engineers worked here to realize control systems and technologies as a support for the entire Soviet space program.

¹⁵ Sadym, Vladimir "Propaganda of the historical and Cultural Heritage of Cosmonautics. The experience of Russian Regional Non-Governmental Organizations" in *Soviet Space Culture*, pp. 94-95.

¹⁶ P. Sylvester, Roshanna, "She Orbits over the Sex Barrier. Soviets Girls and the Tereshkova Moment" in *Into the Cosmos*, pp. 195-212.

doctor or lawyer.¹⁷ One of the most interesting things was the creation of a project designating three huge toy stores in Moscow to propagandize the image of Soviet space exploration. One of them called *Detskii Mir* (*The Children's World*) was opened in the mid-1950s on Lubianka square and filled of toys, clothes and decorations and other consumer goods referring to the cosmos; in particular, one picture taken in 1959 represents an orbit system and a rocket hanging from the ceiling in the main hall of the store. In 1961, the first Club of Future Cosmonauts was opened in Chelyabinsk, a Soviet industrial town in the southern Urals, at the Pioneer Palace. It was an important centre to prepare children for the job of cosmonaut where they could sing songs or read books about Gagarin or Titov, participate to meeting organized by scientist, construct spacecraft and rockets models, dress the space gear and make some training. During the opening ceremony, some fundamental rules were stated such as "Study all the time, know everything! The more you know, the freer you are", "Honesty, modesty, civility – with those we press Communism" and "Working time is good time".¹⁸ Cosmic enthusiasm served not only to re-launch socialism inside the Soviet Union, but also it was used to enhance brotherhood and friendship with the Eastern Bloc, especially in the GDR, and to gain loyalty of their people. Thus, the Soviet Union made the other Socialist countries participated to the Soviet science achievements exporting, above all, the Sputnik itself and space heroes and taking as a benchmark children's culture. For example, the school year 1959-1960 was renamed the *year of the Sputnik* and every student had a *Sputnik-notebook* to document his performance; Gagarin and Tereshkova frequently visited the GDR

¹⁷ Boym and Bartos, p. 83.

¹⁸ Rùthers, Monica, "Children and the Cosmos as Projects of the Future and Ambassadors of Soviet Leadership", in *Soviet Space Culture*, pp. 206-221.

in 1963 where they presented themselves as the messengers of a new era of progress and technology against the oppression of Nazism. In 1978, the first German cosmonaut Sigmund Jaehn onboard Salyut 6 became the most popular hero in GDR especially among children; he toured many schools and institutes and its modest origins were highlighted by Soviet propaganda as in the case of Gagarin and Tereshkova. Taking into consideration the case of Tereshkova, her portrait as perfect cosmonaut, an active sportswoman, a fierce follower of Socialism and a good wife and mother (on November 1963 she married the cosmonaut Adrian Nikolaev and the following year she had the first daughter, Lena) made her a successful role model for Soviet young girls. Thus, girls were encouraged to compete with boys and pursue a career based on science, engineering and technology (SET). This image of women's power affirmed that in the Soviet Union there were no limits in terms of female aspirations. Even though female participation in the space program was not completely highly regarded by the Communist leadership, the census showed that by 1970 the number of women working in SET field increased from 1.63 million to 3.75 million.¹⁹

The new Soviet man

During the late 1950s, Soviet enthusiasm for the cosmos had a huge impact within the Soviet Union and made Soviet people increasingly interested in space explorations for different reasons. What made the cosmos popular among Soviet population was, first of all, the peaceful intention of the Soviet leadership. On a political level, in fact, Khrushchev had frequently evoked the *peaceful*

¹⁹ Sylvester, pp. 195-212

coexistence and the need for an endless freedom for the humankind in opposition to the US military and capitalist ambitions.²⁰ Moreover, the development of the space technology was seen as a tool for the improvement of social conditions and the creation of a brighter future under Communism. It was not a coincidence that the Russian word *Sputnik* means companion, fellow or partner: it suggested that new technologies could help you in difficult moments or share your happiness. In this context, cosmonauts were depicted as well disciplined nice guys always carrying an open smile on their face which inspired both confidence and fondness.

²¹ Clearly, the fact that the Soviet space program was surrounded with a veil of secrecy which pervaded every single aspect of space exploration, created a certain fascination for it. In a certain sense, secrecy grew people's aspirations and expectations for the future. Considering the TASS announcement of the launch of the world's first artificial satellite, it did not contained any information on who designated it, who launched it, what kind of rocket was used, from where it was launched; however, it only contained references to the past Soviet history such as the acknowledge of Tsiolkovsky's work. Soviet censorship has a long tradition in the history of the Communist Party which culminated with the formation in 1922 of the *Glavnoe upravlenie po delam literatury i izdatel'stva* (Glavlit), the official censorship organ in the Soviet Union. Despite Stalin's repressive climate, it was during the peak of the Soviet space program in the 1960s that Glavlit's control expanded considerably with the purpose of preventing foreign publications containing anti-socialist ideas within the Soviet Union. In the "post-thaw" era, there was the need to create a system which was able to prepare and regulate

²⁰ Graziosi, Andrea, *L'URSS dal trionfo al degrado*, pp. 506-542.

²¹ Maurer Eva, Richers Giulia, Rùthers Monica and Scheide Carmen, "What Does Space Culture Mean in Soviet Society?" in *Soviet Space Culture*, pp. 1- 9; Schwartz, pp. 237-240.

publications about technological efforts: prepare drafts of TASS communiqués, write titles for newspapers about the rocket-space technology, correct every single publication for abroad and omit failures or troubles about the space program. Thus, a decree on secrecy was issued on January 1969 which “strengthened control over the maintenance of state and military secrets in the press”. Secrecy, in fact, was necessary in order to protect the strengths of the Soviet space program and to hide the weaknesses of Socialism in order to construct a single narrative where alternatives and ambiguities were not allowed to circulate.²² Engineers, designers and architects behind the Soviet space program were completely hidden from the public scene and rarely named; they were not allowed to make references to specific projects or plans and rarely they could write for newspapers but only under pseudonyms.²³ The only exception to this rule was represented by the cosmonauts who became the spokespersons for the entire Soviet space program. It could be said that they were at the same time the most powerful and powerless representatives: on the one hand, they were the bearers of socialism and Soviet pride; on the other hand, they could not freely speak about the space program, they should be vague about technical details of flight and their private and public lives were deeply devastated by the censorship machine. Nevertheless, as Siddiqi notes, secrecy gave them a huge potency of meaning allowing them to become models of mass devotion.

Cosmonaut was a central figure during space exploration and embodied the Soviet hero by staying in a space between utopia and reality, Earth and space,

²² Siddiqi, A. Asif, “Cosmic Contradictions. Popular Enthusiasm and Secrecy in the Soviet Space Program”, in *Into the Cosmos*, pp. 53-58.

²³ For instance, Valentin Glushko, the chief designer of rocket engines, was allowed to write articles for a science newspaper under the pseudonym of G. V. Petrovich, while Korolev’s identity was revealed only after his death.

present and future. In a very short time, their smiling faces appeared on the front pages of newspapers, posters, cinemas and television in order to support a clear ideological message. In a few words, they perfectly represented Soviet myths. According to the French philosopher Roland Barthes, myth is a way of communication, a message and, at the same time, a deformation of reality. In particular, he analysed the myth as a combination of the signifier (linguistic or visual representation) and signified (concept and meaning) from which emerges a message we are not necessarily aware of it.²⁴ As a consequence, the figure of the cosmonaut was used by the Soviet leadership as a powerful instrument of image-building playing a crucial role in the Soviet collective imagination connected with the idea of brotherhood and universal happiness. The fact that by the mid-1960s people were increasingly fascinated and proud of the Soviet space successes allowed Soviet propaganda to spread the image of the *novyi chelovek*. As Slava Gerovitch observes, “the new man was both a distinct individual and a little cog; he strove for a personal achievement and wanted to be a good member of the collective; he was to be a master of technology, yet he merged with technology as its intrinsic part”.²⁵ On 30th July, 1961, Pravda published the draft of the Third Party Program which defined plans for the technological and economic development of the nation for the next twenty years. Adopted by the 22nd Party Congress in October, it reflected the radical changes that have taken place in world such as the consolidation of communism and the growth of the international communist workers’ movements. The program consists of two different parts. The first deals with the transition from capitalism to socialism, the worldwide triumph

²⁴ Barthes, Roland, “Mythologies”, London: Vintage, 1972, pp.109- 137.

²⁵ Gerovitch, Slava, “New Soviet Man Inside Machine: Human Engineering Spacecraft Design and the Construction of Communism”, *Osiris* 22, 2007, cit. pp. 139-140.

of communism and the maintaining of peaceful conditions for the building of socialist society; the only wars that the Party supported were the struggle of oppressed peoples for liberation against imperialism. The second part shows the tasks in order to build communism involving the creation of the material and technical base and the education of all the working people in the spirit of communist consciousness.²⁶ In a few words, the Program gives concrete evidence of the utopian vision of the definitely victory of Socialism by 1980. However, the most interesting thing of the program was the so-called *Moral'ny Kodeks Stroitel'ya Kommunizma* (*Moral Code of the Builder of Communism*) which explicitly identifies the features of the ordinary *novyi chelovek*. In particular, it read that in a perfect communist society the ordinary man should follow these principles:

“Devotion to the communist cause; love of the Socialist motherland and of the other socialist countries. Conscientious labor for the good of society – he who does not work, neither shall he eat. Concern on the part of everyone for the preservation and growth of public wealth. A high sense of public duty; intolerance of actions harmful to the public interest. Collectivism and comradely mutual assistance: one for all and all for one. Humane relations and mutual respect between individuals – man is to man a friend, comrade and brother. Honesty and truthfulness, moral purity, modesty, and unpretentiousness in social and private life. Mutual respect in the family, and concern for the upbringing of children. An uncompromising attitude to injustice, parasitism, dishonesty, careerism, and money-grubbing. Friendship

²⁶ *Kommunisticheskaia Partiiia Sovetskogo Soiuzu*, “Program of the Communist Party of the Soviet Union”, International publishers: New York, 1961; Kohonen, Iina, “The Heroic and the Ordinary. Photographic Representations of Soviet Cosmonauts in the Early 1960s”, in *Soviet Space Culture*, pp. 109-110.

and brotherhood among all peoples of the URSS; intolerance of national and racial hatred. An uncompromising attitude to the enemies of communism, peace, and the freedom of nations. Fraternal solidarity with the working people of all countries, and with all people.”²⁷

In a few words, it was the cosmonaut himself who perfectly embodied the Soviet utopian myth and behaved publicly according to the moral code. The Program was not perceived as a minor event, but at the contrary it was an ideological step forward. As Iina Kohonen points out in her research, “never before had a utopian dream had such tight schedule, such a precise point of achievement in the future”.

²⁸ Looking more in depth, even though the cosmonaut was depicted as brave and fearless man driving the spacecraft into the space, it is necessary to highlight that his technical role onboard the spacecraft was very limited. The fact is that human qualities are dictated by sensations and emotions, while the machine is fully predictable: as cosmonauts were a source of potential errors, spacecrafts were almost fully automated. Only in the case of a failure on the computerized system, the crew was allowed to use the manual system. Geroovitch clearly explains as the cosmonaut during their training and flights had many common features with the ordinary Soviet citizen. She writes:

“As Soviet citizens were virtually isolated from the outside world, the cosmonauts endured isolation tests in a silence chamber. As the secret police and an army of informers constantly watched ordinary citizens, ready to persecute them for any sign of political disloyalty, physicians constantly monitored the cosmonauts’ physiological and psychological parameters, ready to disqualify anyone who showed a

²⁷ *Kommunisticheskaia Partiia Sovetskogo Soiuza*, cit. p. 122.

²⁸ Kohonen, Iina, “The space race and Soviet utopian thinking” in *Space Travel and Culture: From Apollo to Space Tourism*, eds. Bell, David and Parker, Martin, Oxford: Wiley-Blackwell, 2009, pp. 119.

deviation from the norm. Most important, as Soviet citizens had to constantly watch themselves not to allow any slip, the cosmonauts had to exercise ultimate self-control, carefully choosing every action and every word. Like ordinary Soviet citizens, the cosmonauts had to follow the rules.”²⁹

On the one hand, the candidate cosmonaut should respected particular strict requirements such as the sense of responsibility, the ability to carry out complex assignments and act in seriously difficult situations; on the other hand, the cosmonaut should had a strong sense of duty towards the collectivity and the Communist Party. For example, during the selection procedure to select the first woman cosmonaut, the candidates Valentina Ponomareva and Irina Solov’eva were technically better prepared than Tereshkova but they did not have the capabilities to gain people’s sympathy and to speak before an audience.³⁰

Since the cosmonaut was seen as the myth of the Soviet regime, visual representations especially photographs about cosmonauts were an essential tool in the hand of the Soviet propaganda in order to show that the Soviet utopia has been put into place. According to Barthes,

“It can consist of modes of writing or of representations; not only written discourse, but also photography, cinema, reporting, sport, shows, publicity, all these can serve as a support to mythical speech. [...] This substance is not unimportant: pictures, to be sure, are more imperative than writing, they impose meaning at one stroke, without analysing or diluting it. But this is no longer a constitutive difference.

²⁹ Gerovitch, cit. p. 149.

³⁰ Ibid, p. 154.

Pictures become a kind of writing as soon as they are meaningful: like writing, they call for a *lexis*"³¹

In particular, the purpose of photographs was not the display of the truth, of the real story but, at the contrary, the communication of a fiction capable of hiding a precise message. Starting from Gagarin's flight in 1961, a great number of photographs spread all over the world depicting the Soviet conquest of the space. Simply looking at photographs of Soviet cosmonauts, it is possible to recognise some essential elements: they carry the space suit, especially the helmet painted with the letters CCCP, and a smile or other gestures expressing brotherhood. The space suit, the helmet or even the gloves expresses both prestige and honour for supporting Communism; these signs confirm the good reputation of the cosmonaut who seems an ancient warrior fighting for a noble cause. In addition to this, the broad smile suggests the proud spirit to have had the chance to serve the nation.³² Moreover, photographs portrayed a society which took advantage of technology, an element which made evidence of the Soviet space achievements and the idea of a brightest future. Many of them depicted cosmonauts not in the very moment of their heroic deeds but during everyday routine (spending time with their children, doing the housework or smoking cigarettes). Of course, this kind of representation was not accidental, but carried information beyond. It provided, in fact, a link between present and future as if the utopian *novyi chelovek* celebrated by the Third Party Program was coming into light.³³ Furthermore, photographs of the dark side of the Moon and those of cosmonauts and spacecrafts arose a sense of reality and certainty about the conquest of the

³¹ Barthes, pp. 108-109.

³² Porri, Anneli, "Two images of Spaceman in Estonian Art. The missing Myth of a Hero and the Fable of Failure", in *Soviet Space Culture*, pp. 267-268.

³³ Kohnen, *The space race and Soviet utopian thinking*, pp. 115-126;

space. They seemed to say that even ordinary Soviet citizens could become Soviet heroes. To cite an example, Kohonen tells about the well-known historic photograph representing Gagarin walking on the red carpet towards Khrushchev after his arrival at Vnukovo airport near Moscow. Looking at this, it is possible to notice that the Gagarin's right bootlace is untied. The most interesting thing is that this apparently insignificant detail was not a banal mistake but a deeply studied element. He was portrayed, in fact, as the symbol of an imperfect and flawed myth and, in this way, he was nearer to Soviet citizens.³⁴

As shown, by the end of the Brezhnev's era at the beginning of the 1980s, Soviet leadership has no longer the capacities to carry on space program. The fact that Khrushchev was removed from power three years after Gagarin's flight and that the United States won the Moon race in 1969 caused a definitely disenchantment, maybe evident years before. As a result, the vanishing of the Soviet utopia marked the incapacity to fulfil the mission. As Boym explains, the Soviet Union had great difficulties to support its space program partly due to economic stagnation, but also because of the failure of the connection between technological development, state ideology and utopian myth.³⁵

Gagarin's dark side

Prior to his flight, Gagarin was unknown to the majority of Soviet people but just after his mission when he touched down not far from the village of Smelovka he became the object of worldwide adoration. The Soviet propaganda began emphasizing his humble life story referring to him by his diminutive

³⁴ Kohonen, *The Heroic and the Ordinary*, pp. 115-117.

³⁵ Boym and Bartos, p. 84.

“Yura” or “Yurochka”: a self-made man of peasant origins who suffered, as many other of his peers, the Nazi occupation of his native town and who was ready to sacrifice himself for the sake of his motherland. Although other less desirable and unhelpful details were ignored, Gagarin soon became the *dove of peace* in broad Cold War climate and the leading spokesman for the Soviet Union during his travels within the country and around the world.³⁶ Whenever he went, his gentle and tender smile was adored by everyone, by young girls and adult women shedding tears of joy, schoolboys dreaming to be like him and elderly people being proud of him. His cult of personality that embraced sincerity and authenticity was absolutely welcomed in post-Stalinist society. While Stalin was condemned by his unspoken crimes and massacres, both Khrushchev and his successor Brezhnev believed that truth-telling was subservient to political goals and personal ambitions. However, a contradiction clearly emerged with the publication of the *Moral'ny Kodeks* of 1961 which expressed the necessity to grow a “devotion to the communist cause” and have a “high sense of public duty”. Thus, the Party asked Gagarin to lie in order to be the exemplar of the so-called *novyi chelovek*. In a certain sense, he was obliged to obey because he operated in a cultural and political context in which national prestige and honour were the main issues. As a consequence, Soviet propaganda machine transformed him into an icon of sincerity which legitimised the use of lies and fiction just after his flight. The first problem emerged at the very moment when the Vostok landed on Earth: it was necessary to talk about the spacecraft but without revealing any military or technological detail. As soon as the KGB officials arrived at the landing site, the

³⁶ Ibid., p. 92; Piretto, Gian Pietro, “1961. Il sessantotto a Mosca” [1961. The sixty-eight in Moscow], Bergamo: Moretti&Vitali, 1998, pp. 70-85.

capsule was immediately covered with a black tarp in order to prevent locals from seeing it.³⁷ During his first press conference, Gagarin's account contained some lies such as the fact that he landed in his spacecraft (actually he ejected from it and landed separately from the capsule) and that he landed exactly in the planned point (while it was about a thousand kilometres away). Of particular interest were his vague and evasive answers to the journalists' questions during his post-flight conference in order to maintain the veil of secrecy around the mission and the Soviet space program.

Question: When were you told that you were the first candidate?

Gagarin: I was told in good time that I was the first cosmonaut.

Question: you said yesterday that your fellow pilot-cosmonauts are prepared for another cosmic flight. How many are there? Are there more than a dozen?

Gagarin: In accordance with the plan to conquer cosmic space, pilot-cosmonauts are being trained in the country. I believe that there are more than enough to undertake important flights. [...]

Question: When will the next spaceflight take place?

Gagarin: I think that our scientist and cosmonauts will undertake the next flight when it is necessary.³⁸

Gagarin became a Socialist hero and a worldwide celebrity which would guide Soviet people to the triumph of Socialism. Gagarin's pictures portraying his smiling face wearing the space helmet with the letters CCCP like were copied on posters, newspapers, stamps and matchboxes. He was depicted by journalists as the national ambassador of the Soviet Union and for many months after the flight

³⁷ Jenks, Andrews, "The Sincere Deceiver. Yuri Gagarin and the Search for a Higher Truth", in *Into the Cosmos*, pp. 107-132.

³⁸ Siddiqi, Asif A., "A Challenge to Apollo: The Soviet Union and the Space Race, 1945-1974", NASA SP-2000-4408, Washington, D.C.: National Aeronautics and Space Administration, 2000, cit. p. 283.

he was charged to tour the world as agitator of Communism: he visited Italy, England, Japan, Egypt and the GDR with Tereshkova. Since Soviet propaganda regarding monuments was an important tool for ideological education, many statues of Gagarin were erected in main Soviet cities, for example, a highly stylized Gagarin of thirty meters height was erected in Moscow on Leninskii Prospekt (he is portrayed as a super-hero with a rocket coming out of his feet) and a monument of forty meter high marks the landing site of the *Vostok* spacecraft in the countryside near Saratov.

Although in his public appearances he perfectly embodied the *novyi chelovek*, his fondness for drinking in his private sphere threatened to harm his image as public face of the Soviet space program. The most dangerous accident occurred in October 1961 damaging both his public image and his personal life. After getting drunk with his comrades, he jumped out of the window of his hotel following a womanizing incident and broke his skull above the left eyebrow. Because of his convalescence was three weeks long, he failed to attend the opening ceremony of the 22nd Party Congress. Clearly, it was a political blow for the Communist Party and for Khrushchev himself who was furious with Gagarin next to whom he had stood above Lenin's mausoleum. At this point, the main problem was justifying Gagarin's absence from a scheduled meeting. Thus, it was said that he hurt himself playing with his daughter and, as a result, for weeks after the accident the most photographed person in the world disappeared from the public scene. Even after a cosmetic surgery, his deformed left eyebrow remained visible forever and seemed to recall that Gagarin's real life was quite different from the official image of perfection that Soviet propaganda wanted to

merchandise.³⁹ Moreover, the death of Korolev during a routine operation (but the truth about his death could not be revealed at that time) was a shock for Gagarin himself not only because he was the admirable chief of the Soviet space program, but also because he left Soviet technology in a state of great weakness. As Jenks notes, during the last years of his life his trademark smile disappeared, he put on weight and his face was more and more bloated and his hair grew wispy. According to Soviet propaganda, all these physical features weakened Gagarin's credibility in the eyes of Soviet population. It was only with Gorbachev's policy of *glasnost* that definitely emerged the conditions to make the truth known. The most interesting point in this sense concerns Gagarin's death. He died on March 27th, 1968 during a routine training flight; his death was officially reported on *Pravda* on March 29th announcing the formation of a special commission to investigate the accident, however it did not refer any further detail or explanation about the causes. It had to wait twenty years to have an official investigation for his tragic death due to a combination of human errors.⁴⁰ Without any doubt, the Soviet Union was not exclusively based on lies and dissimulation, nor Gagarin could be identified as a liar. He was, indeed, a product of the Soviet system. His mythologized image during the 1960s had the final aim of representing Gagarin as an ordinary human being capable of both great heroic deeds and objective defeats.

³⁹ Gerovitch, pp. 150-151; Jenks, pp. 107-132.

⁴⁰ Siddiqi, *A Challenge to Apollo*, pp. 628-629; Jenks, pp. 127-128.

Soviet nostalgia

Following Khrushchev's denunciation of Stalin's crimes at the XX^o Congress of the Communist Party, science was increasingly perceived as a crucial factor for improving social living conditions among Soviet population. Thus, when the first artificial Earth satellite was launched in 1957 nobody knew that cosmos would be the symbol of a whole generation especially during the "thaw". In this context, the practise of secrecy concerning details about the Soviet space program led to a strict connection between the history of the Soviet Union with particular reference to bolshevism and the future success of socialism after Stalinism. According to Siddiqi, the past was useful to make the story of the Soviet space exploration coincident with the Bolshevik project, while the future reflected the hopeful expectations during the Khrushchev's period; in a few words, socialism made the space program possible, while the latter made the former stronger.⁴¹ This kind of approach was typical of the Soviet enthusiasm for cosmos during the first fifteen years of space exploration. The Mausoleum of Lenin in Red Square is symbolic in this sense. Designated by the architect Aleksey Shchusev, it seems to be quite small from the outside, but it actually has hidden depths which contained the father of the revolution's embalmed body whose sarcophagus was designated by the famous Konstantin Melnikov. It was the place where cosmonauts were celebrated with national pride after their heroic flights and for the first time presented to the crowd as the bearers of the Socialist ideology. It was during that time that the image of travelling in outer space passionately inspired popular enthusiasm for cosmos which deeply resonated in

⁴¹ Siddiqi, "From Cosmic Enthusiasm to Nostalgia for the Future. A Tale of Soviet Space Culture" in *Soviet Space Culture*, pp. 289- 294.

the so-called *nauchnaia fantastika*, genre which became very popular among Soviet people in the post-Stalinist period. The possible presence of human life in other planets or galaxies, the experience of time travel and the encounter with other forms of lives were the main themes of the Soviet (and then Russian) science fiction. It is interesting to note a double characteristic of the Soviet enthusiasm for cosmos. At the beginning, Soviet achievements in space concerned the fact that technological development was strictly connected to the future realization of Communism. Thus, by means of Khrushchev's space propaganda, cosmonauts were depicted as the incarnation of utopian promises whose aim was the confirmation of the Soviet political, technological and ideological supremacy in the context of the Cold War. With the passing of the time, the close contact with the vastness of the cosmos grew the belief according to which mankind was no longer perceived as superior to nature. To be in relation to the infinity means, in fact, the acceptance of the limits of human power and the possible existence of other forms of lives.⁴²

It was following the early Soviet successes in the late 1960s that cosmic enthusiasm began to fade. In fact, the unexpected death of Korolev in 1966 and that of Gagarin two years later definitely broke this wave of national euphoria. The succeeding evident failures of the Soviet space program of these years provoked a sense of lost hope and disillusionment among those who were deeply confident about the past expectations. Svetlana Boym recalls:

“With some trepidation I realized that we were the generation that was supposed to live in the era of Communism and travel to the moon. We

⁴² Siddiqi, “Imagining the Cosmos: Utopians, Mystics, and the Popular Culture of Spaceflight in Revolutionary Russia”, in *Osiris*, 2008, pp. 260- 288; Schwartz, pp. 237-250.

did not fulfill our mission. Instead we were forced to confront the ruins of utopia [...] the fairy tales of our childhood was deprived of a happy ending [...]" ⁴³

As a consequence, the belief according to which the connection between past and future would be helpful to the Socialist ideology seemed to vanish giving way for a kind of nostalgia concerning past Soviet achievements in space. The lost confidence was also reinvigorated by the development of the *samizdat*, dissident culture which after Khrushchev's ouster in 1964 expanded considerably its illegal publications of hidden and unpleasant details of the Soviet space program. ⁴⁴ The technological optimism of the early years of the Soviet space program turned into a sense of disillusionment and stagnation in the later decades. In post-Soviet culture, cosmos was devaluated as if the dreams of the 1960s have transformed itself into distant memories. All features about dead cosmonauts and past Soviet accomplishment in space was subjected to deconstruction in literature and films during the 1990s and 2000s and perceived as past myths especially related to Soviet childhood. After the collapse of the Soviet Union, Soviet people especially the young felt the need of a breath of fresh air, a new way of celebrate old heroes far from the *novyi chelovek* merchandized by the Communist Party. It was not a coincidence that Gagarin Party in 1991 was the first rave party in Moscow taken

⁴³ Boym and Bartos, cit p. 84.

⁴⁴ *Samizdat* (literally "self-publishing") was a form of literature which secretly circulated in the Soviet Union in the mid-20th century. Actually it appeared following Stalin's death in 1953 as a revolt in favour of the freedom of expression, but it was in the mid-1960s that *samizdat* publications expanded considerably. It included reports of dissidents or journalists suppressed by official media, protests addressed to the Soviet regime and articles of political and socioeconomic themes. *Samizdat* was clearly subjected to censorship by the KGB which worsened at the height of its activity in the early 1970s. With Gorbachev's policy of *glasnost* and the collapse of the Soviet Union, *samizdat* had little by little disappeared.

place in the space pavilion of the Exhibition of Achievements of the National Economy.⁴⁵

⁴⁵ Boym and Bartos, pp. 94-94; Yurchak, Alexei, "Gagarin and the Rave Kids: Transforming Power, Identity, and Aesthetics in the Post-Soviet Night Life", in *Consuming Russia: Popular Culture, Sex, and Society Since Gorbachev*, A. Baker, ed. Duke University Press, 1999.

FINAL CONSIDERATIONS

In the aftermath of the World War II, the two world's most powerful nations engaged in a war which concerned their different politics, ideologies and economies. The so-called Cold War between the United States and the Soviet Union focused on indirect confrontations, strategic coalitions, propaganda campaigns, missiles and nuclear arms deployments and technological rivalry such as the space race. In this context, the exploration of outer space was seen as necessary for national security as well as ideological superiority. It is generally believed that the space race between the United States and the Soviet Union began on 4th October, 1957 with the launch of Sputnik 1 into Earth orbit and reached its peak with President Kennedy's speech in 1961. It might be difficult, indeed, to identify a precise end point which could be considered the 20th July, 1969 when Armstrong stepped on the Moon for the first time in the history. While during Stalin's period the scientific and technological progress suffered an interruption, it was with the rise to power of Khrushchev that the Soviet Union accomplished a series of memorable great firsts: the ICBM, the artificial satellite and dog in space in 1957, the probe to orbit the Moon and the images of the Moon's far side in

1959, dogs to safely return from Earth orbit in 1960, man into space in April 1961 and man to spend a day in orbit in August, woman in space in June 1963, multi-person crew in 1964 and man to perform a spacewalk in March 1965. As shown, these achievements in space became a powerful tool of propaganda in the hand of the Soviet leadership not only to demonstrate the Soviet Union's military superiority but also provided the Soviet Union with soft-power tools to convince the rest of the world of the attractiveness of Communism. During the Cold War, in fact, the Soviet Union was engaged in a political and cultural campaign concerning the enthusiasm for the cosmos, the myth of the cosmonaut and mass persuasion. The former dean of the Kennedy School of Government at the Harvard University, Joseph Samuel Nye Jr., explains that for a certain period of time it was seriously believed that the Soviet Union would overtake the United States thanks to the success of its planned economic system in the post-war period and the technological achievements. In particular, the launch of the Sputnik in 1957, led many people to think that the Soviet Union have definitely beat the United States in space.¹ At this time, the NF became the mainstream literature of the regime with the aim of developing the soft power and enhancing the attractiveness of Communism. In Menzel's definition, the NF was based on the Marxist interpretation of science and progress and linked to the Communist utopian project of wealth and happiness for the masses.² It is the case of Stanislaw Lem who along with the majority of the NF writers in the Soviet Union and the Eastern bloc carried on the enthusiasm for a brighter future and the faith in the

¹ Nye Jr., Joseph S., *Soft Power: The Means To Success In World Politics*, PublicAffairs, 2005.

² Birgit, Menzel, "Russian Science Fiction and Fantasy literature", in *Reading for Entertainment in Contemporary Russia: Post-Soviet Popular Literature in Historical Perspective*, eds. Lovell, Stephen and Menzel, Birgit, Verlag Otto Sagner, Munchen, 2005, cit. p. 119.

technological progress. In particular, the novel *Solaris* expresses the contrasting feelings of this time: on the one hand, the enthusiasm for the cosmos that drives scientists to discover other planets and, on the other, the fear of the possible encounter with other forms of living and the incapability of the human mind to solve the aliens' enigma.

During the mid-1960s, however, the Soviet Union began collecting many evident failures which led to the disillusionment of the conquest of the space. The removal of Khrushchev in 1964, the loss of the Moon race in 1969 and the definite cancellation of the Soviet lunar landing program in 1974 showed the incapability of the Soviet leadership to face the situation. Despite the efforts to spread the Soviet soft power, the Soviet Union never really competed with the US global influence especially due to its closed system. As Nye highlights, the election of Gorbachev and his policy of *glasnost* allowed the Soviet Union to gain more credibility but the absence of cultural and technological exports undermined Soviet propaganda and its attractiveness. In fact, the Soviet Union lacked of both political and financial stability aggravated by the economic crisis which definitely affected the Soviet Union's possibility to compete with the United States. From a literary standpoint, the gradual suppression of censorship and the social and political changes following the collapse of the Soviet Union marked the return of the *massovaja literatura* whose success might be found both in the diversification of the genres and in the deconstruction of the Communist ideology. The latter issue is the main theme of the short novel *Omon Ra* which depicts the Soviet space program in an ironic and disenchanted way. In particular, the lack of personal freedom and the necessity to sacrifice themselves for the sake

of Socialism is evident in the episode of the cardboard spaceship in which the protagonist and his friend Mitiook discovered that the little plastic man is embedded in the rocket without ways out:

“When they made it [the cardboard rocket], they started with this little man. They made him and sat him on the chair and glued the cardboard shut all around. [...] But the most interesting thing,” Mitiook said in a thoughtful and depressed sort of voice, “is that there was no door. There was a hatch drawn on the outside, but in the same place on the inside – just some dials on the wall.”³

Thus, they realize how the regime made the Soviet citizen believe on a distorted vision of reality which, at the end, turns out to be a total disenchantment, rather than the place of the Soviet fulfilment.

With the end of the Cold War the two superpowers began to seriously take into consideration the idea of cooperate in the field of space technology in order to construct a joint space station. Originally conceived by Reagan in the mid-1980s, the International Space Station (ISS) would merge American and Soviet space projects in order to build up a single facility. The assembly of the so-called ISS in low Earth orbit began with the launches of the Russian control module in 1998. Four years later the station received the first resident crew comprising of two Russians and an American cosmonauts who flew up in a Soyuz spacecraft. Today, in fact, the Soyuz spacecrafts are used to reach the ISS and return on Earth. The exploration of the outer space continues nowadays thanks to the collaboration of other space agencies such as the Japanese, the European and the Canadian. At this time, there are no information by the space agencies about a possible end of the

³ Pelevin, *Omon Ra*, cit. pp. 15-16.

program but it is hoped that it will continue for a long time. In fact, its ability to plan, coordinate and supervise the numerous space activities concerning worldwide organizations is considered to be its greatest accomplishment, both human and technological one.

APPENDIX



Figure 1 - Vostok crews and Khrushchev on Lenin's Mausoleum in Red Square photographed in 1963. From left to right are: Pavel Popovich (Vostok 4), German Titov (Vostok 2), Andriyan Nikolayev (Vostok 3), Yuri Gagarin (Vostok 1), Valentina Tereshkova (Vostok 6) and the First Secretary of the Communist Party of the Soviet Union Nikita Khrushchev. *Source:* Science Photo Library.



Figure 2 - Yuriy Gagarin and Valentina Tereshkova, the first man and first woman in space, adorned with medals and awards. *Source:* Science Photo Library.

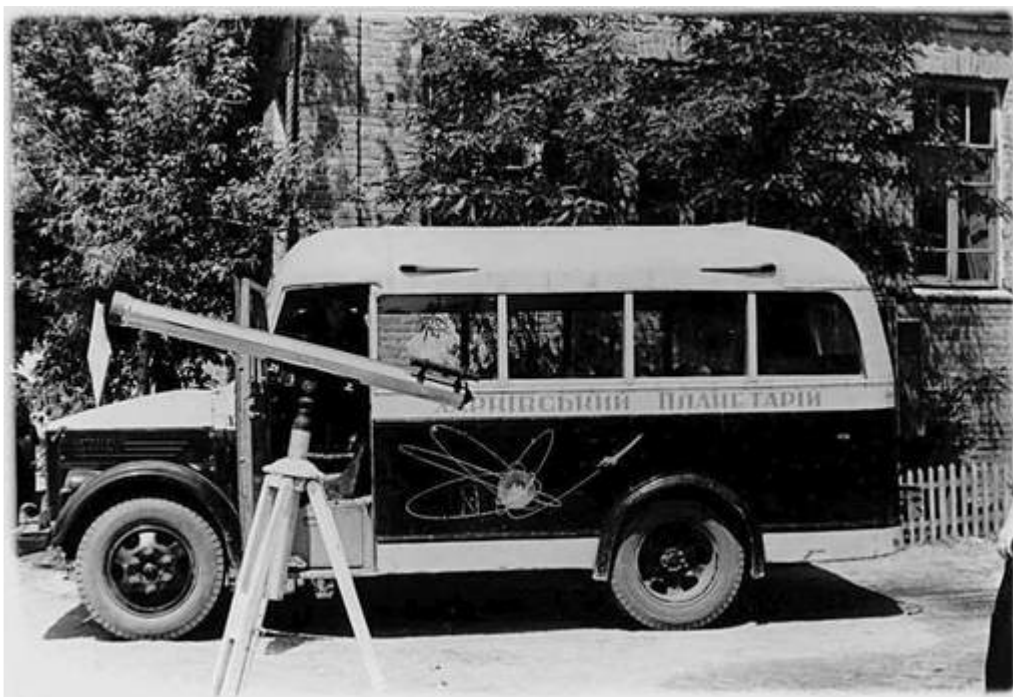


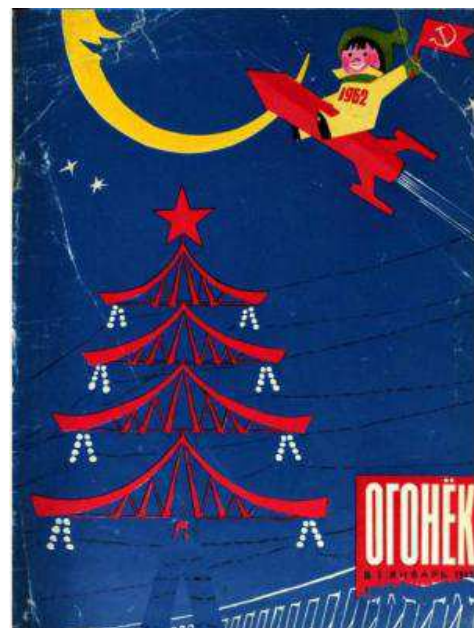
Figure 3 - A *mobile planetarium* in the early 1960s, a bus quipped with a telescope used for lectures in the Kharkiv region, Ukraine. *Source:* Image of Kharkov Planetarium imeni Gagarina.



Soviet propaganda slogans emphasizing space exploration and Soviet ideology. **Figure 4** - “Be proud, Soviet man, you opened the road to stars from Earth!”. **Figure 5** - “Sons of October - Pioneers of the Universe!”. **Figure 6** - “In the name of peace and progress!”. Source: Retronaut.



Figure 7 - The front pages of the oldest weekly illustrated magazines the Soviet Union published respectively in 1958 and in 1962. *Source:* journal-club.ru.



Figures 8-9 - The conquest of the space was used by the Communist leadership as a means to encourage the young generation to take part to the enthusiasm for the cosmos: “From student’s models to spaceships!”. *Source:* Ogonyok.



Figure 10 - The front page of the famous Soviet/Russian periodical magazine *Tehnika Molodezhi* published in 1963 (n° 1) reporting the names of the most eminent scientists and theorists in the history of space exploration: “Towards the peak of science. Democritus, Ptolemy, Copernicus, Galileo, Newton, Lomonosov, Lobachevsky, Mendeleev, Rutherford, Bor, Einstein, Tsiolkovskiy”. Source: *Tehnika Molodezhi*.



Figure 11 – The Moon’s surface. Photograph taken by the Soviet lunar unmanned spacecraft Zond 3 on 1st September 1966, showing the cratered surface of the far side of the Moon. Source: Science Photo Library.



Figure 12 - Apollo-Soyuz Test Project. The historic handshake in space between the American astronaut Stafford and Russian cosmonaut Leonov on July 15th, 1975. *Source:* Science Photo Library.



Figure 13-14 - "For peace and friendship". After the election of Gorbachev, Soviet propaganda called for peace and space cooperation with the United States. *Source:* journal-club.ru.



Figure 15 - The Monument to the Conquerors of Space erected in Moscow in 1964 to celebrate the Soviet achievements in space. The base of the monument host the Memorial Museum of Cosmonautics. *Source:* Science Photo Library.



Figure 16 – Particular of the Cosmonauts Alley in Northern Moscow leading to the Museum of Cosmonautics. *Source:* private.

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